MoleMax HD

User Manual

Version 1.0

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MoleMax ^{HD}

USER MANUAL

Section I - INTRODUCTION

1. Safety

Read this page carefully before installing and using the instrument. The safety statements in this manual comply with the requirements of the HEALTH AND SAFETY WORK ACT 1974.

The instruments described in this manual are designed to be used by properly trained personnel only. Qualified personnel who are aware of the hazards involved must carry out adjustments, maintenance and repair of equipment.

1.1. Safety Precautions

1. For the correct and safe use of this instrument it is essential that both operating and servicing personnel follow generally accepted safety procedures.
2. The instrument covers should only be removed by personnel who have been trained to avoid the risk of electric shocks. The main electric supply to the instrument must be disconnected at the mains supply connector and at least three minutes must be allowed for capacitors to discharge.
3. Specific warnings and cautionary statements are noted in the manual and on the unit where necessary.

1.2. Impaired Safety Protection

Whenever it is likely that safety protection has been impaired, the instrument must be made inoperative and secure against any unintended operation. The problem should then be referred to the appropriate service authority. Safety protection is likely to be impaired if for example the instrument fails to perform the intended examinations or shows visible damage.

1.3.   CE Mark

According to European safety requirements, the MoleMax system is approved by an Austrian authorized organization to comply with EN 55022/1994, EN 50081-1, EN 50082-1, IEC 601-1 and ÖVE-MG / EN 60601-1-1.

In compliance with the Medical Device Directive 93/42/EEC, MoleMax is classified as a medical instrument in the medical device class 1.

> **IMPORTANT**
> The MoleMax is an integrated medical device and as such certified with the CE mark. In case of loss of functionality of the system as a result of the user installing software not certified by the experts of Derma Medical Systems, the warranty guaranteed by Derma Medical Systems is void.

Derma Medical Systems
Handels- und EntwicklungsGmbH
Wiedner Hauptstraße 140
A-1050 Wien
Tel.: +43 1 318 69 90
Internet: www.dermamedicalsystems.com

DERMA
MEDICAL

Konformitätserklärung
Declaration of Conformity

Produktspezifikation / *product details*:

Produktbezeichnung / *product name*	**MoleMax HD** / *MoleMax HD*
Type / *type*	**Digitales Auflichtmikroskopiesystem für die Dermatologie** / *Digital Epiluminescence Microscopy Sytem for Dermatoloy*
Klassifizierung nach RL 93/42/EWG, Anhang IX / *Classification according 93/42/EEC, annex IX*	**I nach Regel 1 /** *I per rule 1*

Konformitätsbewertung / *assessment details*:

Verfahren nach RL 93/42/EWG / *Route of directive 93/42/EEC*	**Anhang VII (EG-Konformitätserklärung) und Anhang X (Klinische Bewertung) /** *Annex VII (EC-declaration of Conformity) and Annex X (Clinical Evaluation)*

Angewandte Normen / *used standards*:

Harmonisierte Normen / *harmonized standards*	**EN 55022:2003, EN 61000-6-1:2002, EN61000-6-3:2002 , EN 60601-1-1:2000**
Sonstige Normen / *other standards*:	**EN ISO 14971:2003, EN 980:2003**

Wir erklären in alleiniger Verantwortung, daß die oben beschriebenen Produkte den
Anforderungen der Richtlinie 93/42/EWG und den österreichischen
Medizinproduktegesetzes BGBl. 657/1996 i.d.g.F. entsprechen. Die Produkte werden
mit dem CE-Kennzeichen versehen.
*We declare under sole responsibility that the products described above are in
compliance with directive 93/42/EEC and the austrian medica- device-law BGBl.
657/1996. The products are CE marked.*

 $C\epsilon$

Wien, 01.12.2010   **Generaldirektor /** *general director*

2.   General Information

Thank you for buying MoleMax, the worldwide leader in digital epiluminescence microscopy (DELM) and digital skin imaging.
DELM provides a method to view not only the skin surface but the sub-surface layers as well, making it possible to distinguish between benign and malignant moles at early stages.
The method of epiluminescence microscopy, also called dermatoscopy, opens up a new view of morphological features, colors and patterns not seen in an examination with traditional skin surface microscopy.
MoleMax was developed in co-operation with the University of Vienna Medical School, Department for Dermatology (Prof. Klaus Wolff, MD).

International patents are pending.

But MoleMax can also be effectively used as a documentation system for **ALL Skin problems** (e.g. "before and after" laser treatments as well as the progress of psoriasis and acne treatments etc.).

2.1. How to Use this Manual

This manual consists of four sections. The first section describes the safety requirements and provides general information about DELM and the system. The second section explains the hardware components and lists the technical specifications of the system. Next, the installation and the different functions of the MoleMax software are described. In the last section a troubleshooting guide will help to answer the most frequently asked questions and to solve possible problems.

If you need further assistance please contact your local dealer.

The users of MoleMax have access to the **MoleMax Service-Hotline**:

+43 1 318 69 90

Monday-Friday from 09:00 to 16:00 (CET), communication in German and English.
Or send an email to **derma@dermamedicalsystems.com**.

2.2. Principle of Operation

MoleMax is an integrated system for digital epiluminescence microscopy and digital skin imaging. Thanks to the worldwide-patented technique of light polarization dermatoscopic examinations can be done without the use of immersion fluids. The integrated LED light in the macro-imaging mode allows putting the camera also directly onto the skin for taking close-up and clinical images.
The system's hard disk can store thousands of images and they are immediately available for comparison. Therefore, simultaneous dermatologist/patient on-screen observation of potential mole alteration is possible.

2.3. MoleMax HD System

MoleMax HD systems consist of :

- The MoleMax HD system camera in high definition (Full HD) with auto-focus and motor zoom as well as an additional close-up illumination
- One or more DELM adapters with special light polarization device
- A basic unit with power supply, automatic camera mode detection, video processor, frame grabber electronics, network connection and data backup
- Single or dual Widescreen True Color flat screen with Full HD 1920x1080 resolution
- A specially designed MoleMax HD equipment cart
- The MoleMax HD software package respectively

Optional: Total Body Mapping Stand, Color Printer or other hardware and software Add-Ons

The camera-electronics is pre-configured for optimal image quality. Adjustments can be made by qualified Service-engineers only. Please contact your local dealer.

2.4. MoleMax HD Software

The MoleMax HD software version 1.0 is supported by Windows XP and Windows 7 operating systems (registered trade mark of Microsoft).
The software was designed by doctors for doctors and not by computer specialists. Therefore, the software is user-friendly and can be used without computer/software skills.

2.5. How to Turn On the System

Always turn the system on and off via the central power switch on the trolley. If the system was delivered without equipment cart always turn on the system by pressing the power button on the front or back side of the basic unit, depending on configuration. In that case the monitor has to be turned on separately.

The pre-installed operating system checks the hardware components on each boot up, which takes a few minutes and automatically starts the operating system and the MoleMax HD software, unless specific User log in is required.

The system is ready to work when the main menu of the MoleMax HD software is visible on the screen.

Before switching off the system always exit the MoleMax HD program first. Then click on the *Start* button in the lower left corner and *Shut down* to log off the system. Choose the option *Shut down the computer?* and confirm with YES.
Wait for the permission before switching off the system by using the central power switch.

IMPORTANT
Please follow this procedure strictly and do not switch off the system before the corresponding message is displayed on the monitor.

3. Care Instructions

All parts of the MoleMax HD can be cleaned with standard, mild cleaning supplies. Only the plastic covers should be cleaned with special Acryl glass cleaning agents. The front glass plates of the cameras could be removed from the cameras and can be cleaned with Alcohol or they can be sterilized. Please take care that no alcohol gets inside the camera. To clean the monitor of the system please use standard display cleaner

MoleMax *HD*

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Section II - HARDWARE MANUAL

4. Installation

4.1. Connection to the Mains, Grounding

The standard configuration of the MoleMax HD system is for 220/230 V and 50 Hz.
115 V version is available on request
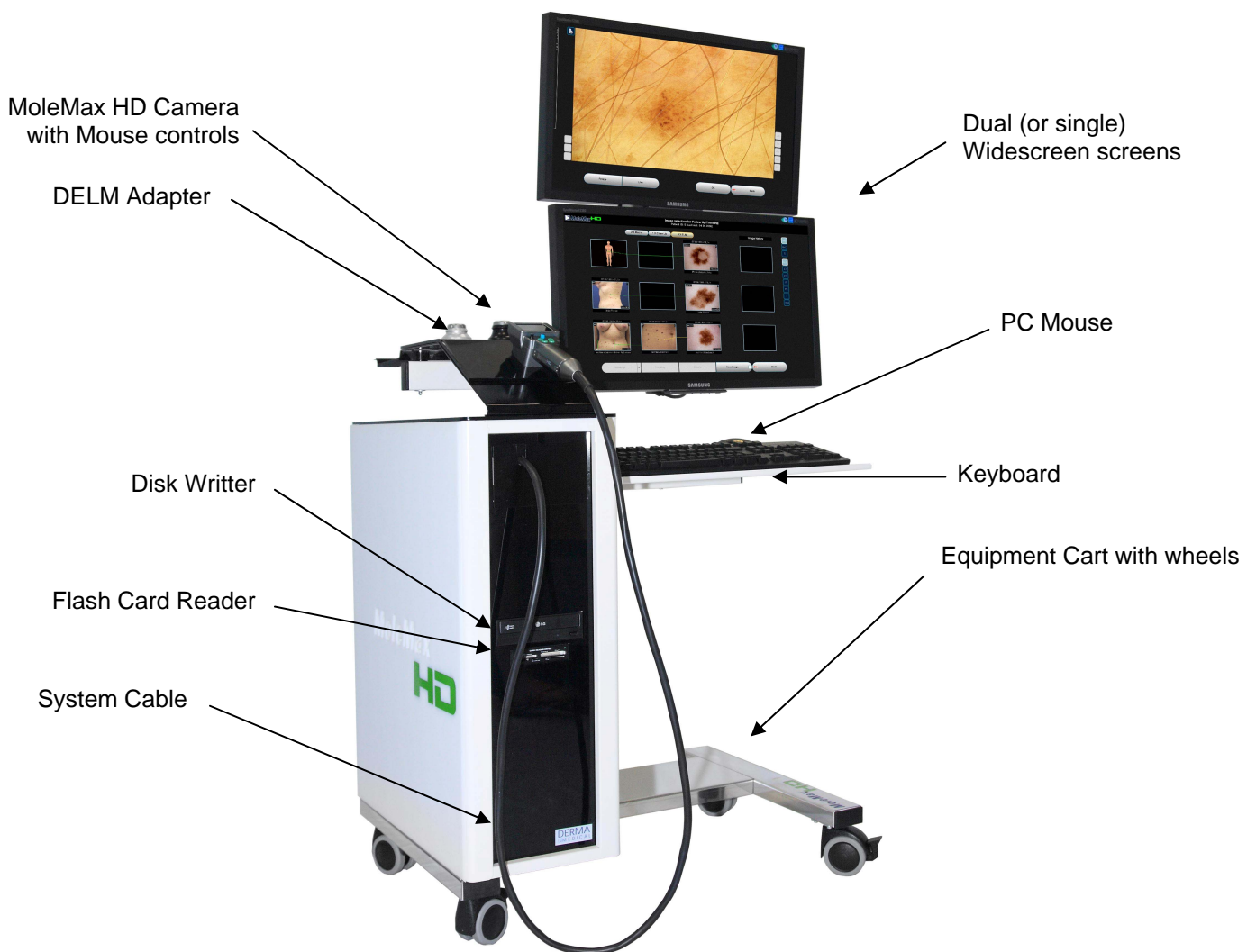Make sure to use protective grounding via three core mains cables only.

Warning!

Any interruption of the protective conductor inside or outside the

instrument is likely to make the instrument dangerous. Intentional

interruption is prohibited.
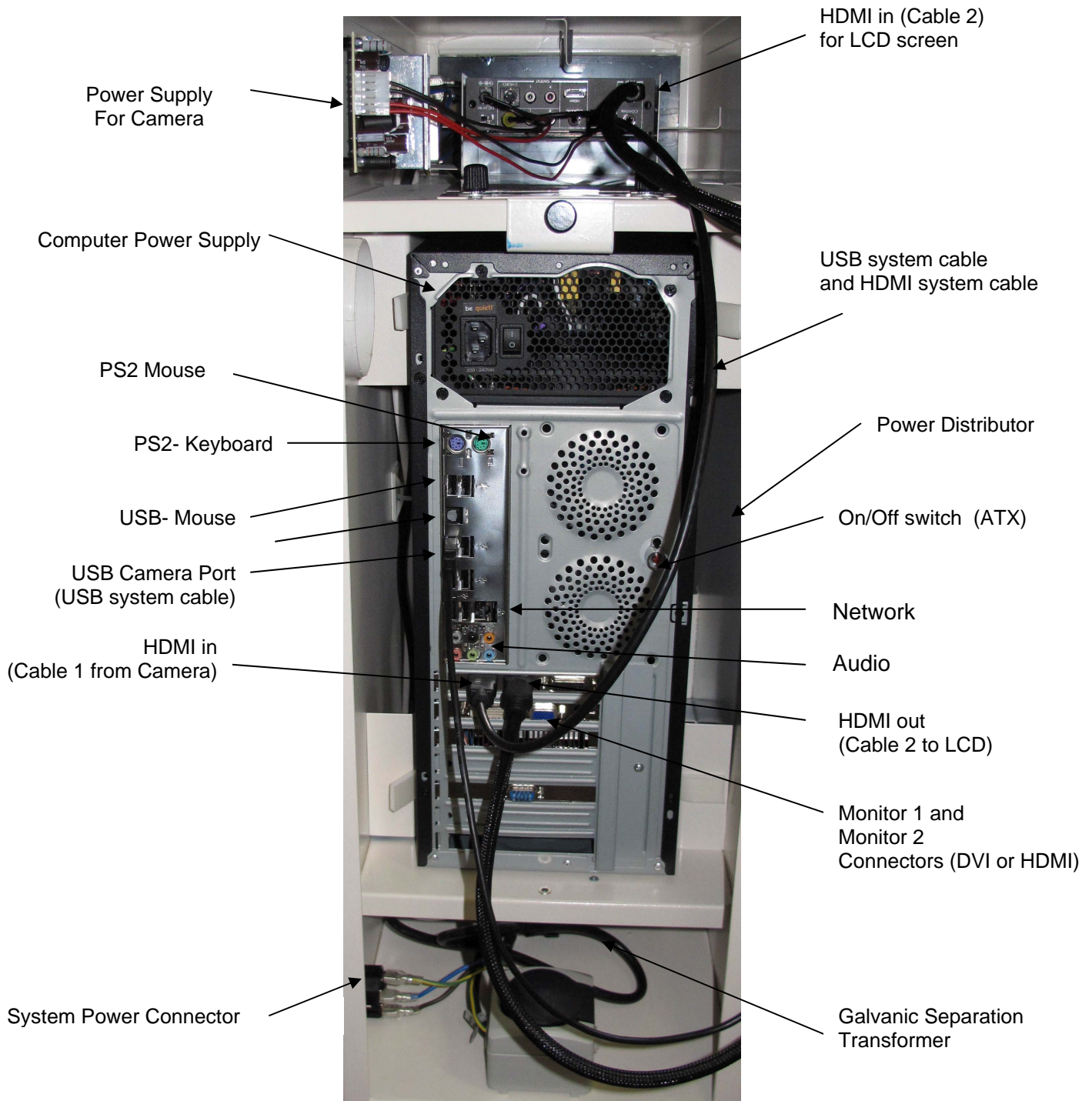
4.2.   Front View Description

MoleMax HD System

MoleMax HD Camera
with Mouse controls

DELM Adapter

Dual (or single)
Widescreen screens

PC Mouse

Disk Writter

Keyboard

Flash Card Reader

Equipment Cart with wheels

System Cable

4.3.   Connections

Connector positions may vary due to further developments of the MoleMax HD models.

Power Supply For Camera

HDMI in (Cable 2) for LCD screen

Computer Power Supply

USB system cable and HDMI system cable

PS2 Mouse

Power Distributor

PS2- Keyboard

USB- Mouse

On/Off switch (ATX)

USB Camera Port (USB system cable)

Network

HDMI in (Cable 1 from Camera)

Audio

HDMI out (Cable 2 to LCD)

Monitor 1 and Monitor 2 Connectors (DVI or HDMI)

System Power Connector

Galvanic Separation Transformer

5. Specifications

5.1. MoleMax HD System Camera

1/3 type CMOS imager
Approx. 2M effective pixels of Full HD Live Video
16x9 Aspect Ratio
HDMI output for true digital connection without further conversions
Auto ICR for Day/Night function
Minimum Illumination 1.0lx (ICR on Mode-F1.8 50 IRE)
High-speed serial communication (max. 38.4 kbps)
TTL signal-level control / communication protocol
120x optical zoom (10x zoom/12x digital)
Programmable factory presets
High Performance Digital Signal Processor (DSP)
Various customizable settings
Electronic Shutter/Slow Shutter
Picture Freeze Function
Spot AE
Internal/External sync
True Color Live Video 32 Bit
4-lens element, special glass x 30, fix focus
Illumination ring light and light polarization device
Built in mouse control device (Microsoft-track stick and mouse buttons)
Zoom Buttons
LCD screen for image preview
Cable with single plug connection

5.2. Basic Unit

Power supply and camera connections with integrated camera holder
Camera control electronics
Automatic image mode recognition
Latest Intel processor
Latest HDD for data storage
Latest Rewritable Disk for data backup
Flash Card multiple reader
Top USB connection
Windows XP or Windows 7 (+ latest service pack)
High quality video processor board and frame grabber board

To improve system performance, specifications are subject to change without notice.

5.3. General Technical Data

The MoleMax HD system may be connected to any properly grounded outlet, which is secured with a 16A fuse (except of explosive dangerous areas).

Nominal Voltage	110/ 230V AC, 60/ 50 Hz, 1,9/ 1,1A
Power Consumption	max. 750 W
Dimensions:	85 x 60 x 130 cm (W/L/H);
Weight:	90 kg

MoleMax ^{HD}

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Part III – SOFTWARE MANUAL

Content (continued)   Page

Part III – SOFTWARE MANUAL

## 6. Software Installation

	IMPORTANT
!	▣ Please note that the software is already pre-installed on the delivered system. Only in case of a complete breakdown of the system software needs to be re-installed according to the guidelines below.
	▣ To install the MoleMax HD software you need to have administrative privilege. Please contact your local dealer for obtaining a temporary administrator password.
	▣ The MoleMax HD software requires Windows XP or Windows 7 operating system. Ask you local dealer about the current drivers for the hardware components that need to be installed before installing the MoleMax HD software.

Step 1:
Put the CD-ROM labeled MoleMax HD Version 1.x into the disk drive.

Step 2:
Installation procedure will start automatically. Following screen will appear:
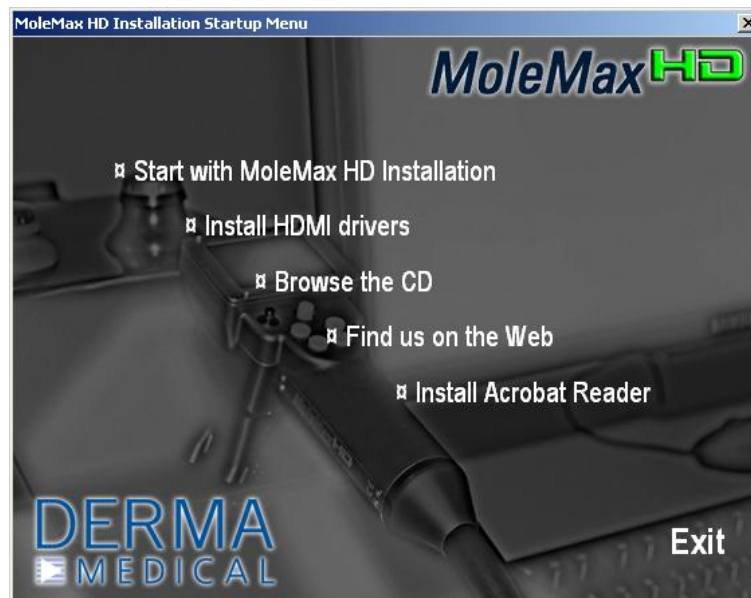
Click on the "Start with MoleMax HD Installation" field

Step 2a:
If installation screen does not come automatically press **Start** button in the left lower corner on the screen and select the option **Run**.
Type the following path (including the quotation marks): **"disk drive: \molemax_HD_setup.exe"** and confirm with **OK**. The installation process will be started. Use appropriate drive letter in place of "disk drive"

Step 3:
After exchanging some system files the installation routine might need to reboot the system automatically and start the actual software installation after the start up. Select the appropriate language version and follow the instructions on the screen.

Step 4:
After the installation has been completed restart the system and log in to activate the changes.

When starting the software for the first time after the installation the software prompts for MoleMax HD Activation Code. This is to be obtained thru your dealer or directly over MoleMax service hotline. Please note Your Site Code as well as Serial Number of the system if doing this directly.

If you experience problems with the installation of the software please contact your local dealer or the software hotline.

> **IMPORTANT**
> - Always use native resolution of the screen. MoleMax HD is delivered with single or dual Full HD widescreen monitors.
> - Minimal screen resolution for MoleMax HD software is 1920x1080 pixels. This is also the recommended resolution!

7. MoleMax HD Software

7.1. Main Menu

It is recommended to read the heading "General Information" from chapter 2.1. to 2.5. of this handbook prior to using the instrument. This heading explains the basic steps on how to operate the system. MoleMax HD can be used without any computer knowledge. The integrated mouse in the camera can control all functions within MoleMax HD.

In addition a standard PC mouse and keyboard can be used. The program automatically recognizes, which mouse is active.

Before getting started please make sure that all individual power switches on the units like Basic Unit, Monitor and Printer (if available) are switched on. During routine use, always leave these individual power switches ON. Turn the system ON and OFF through the central power switch. The pre-installed operating system automatically starts the MoleMax HD software. The camera is ready for use when the Start Menu is shown, as on the image below.

Log On / Log Off

If different user profiles are defined each user needs to log on with his user name and his password at the log on screen. Select the down arrow to open the list box and select a user name from the list. Enter the appropriate password and select **LOGON** to enter the Main Menu.

After having finished working with the MoleMax HD system the user needs to log off. To do so, select the symbol **LOG OFF** in the Main Menu.

(Contact your dealer if You wish to activate "*User Profiles*")
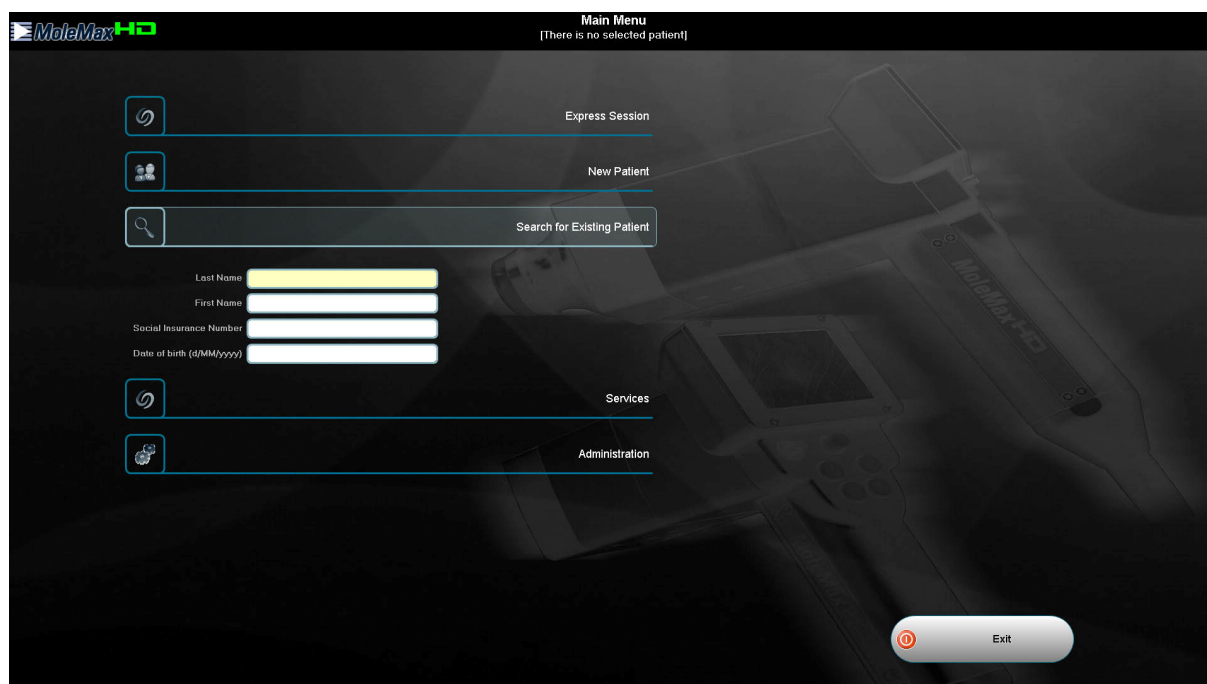
	IMPORTANT
⚠️	▣ If Your MoleMax HD System is equipped with two widescreen monitors Live Video from the Camera is always shown in the top screen.
	▣ If Your MoleMax HD System is equipped with single widescreen monitor Live Video is shown after entering appropriate Video function!
	▣ **All screenshots in this Manual are taken from MoleMaxHD System with two widescreen monitors where Live Video is ALWAYS displayed within the top screen. LiveVideo on Single screen units is shown upon entering Live Video Function!**

The easy-to-use **icons** have the following functions:

Express Session /Live Video	Substitution for the handheld dermatoscope by using MoleMax HD video cameras, Fast check without patient input, but still with option to save the images!
New Patient	To be used during patient's first visit. All necessary data patient data must be input here.
Select Existing (Patient)	To be used if the patient is already in the database. All follow up examinations of patient and all other patient related functions are located in this menu
Services	Includes all services such as **Backup**, Export/import or Statistics
Administration	Complete MoleMax administration tools
Exit	Close MoleMax software and exit to Windows

7.2. MoleMax HD Camera

The MoleMax HD digital video camera is connected to the front of the basic unit through a special designed cable.
Always handle the camera with care and if not in use store it in the designated holder. When taking macro-images take off the DELM adapter and place into the corresponding holder. After finishing working with the camera it is recommended to take off the DELM adapter before putting the camera back into the designated holder.

The outer lens of the DELM adapter can be easily removed for cleaning or replacing by simply twisting it by 90 degrees. It is possible to autoclave the glass lens. (Important: autoclave only up to 120° C).

Please take a look at the following illustration for the explanation of the control buttons on the backside of the camera.

To switch to the DELM camera mode, clip the DELM adapter onto the front of the camera. The software automatically recognizes the active camera mode.

The software is designed in that way that all functions are executed when clicking on the corresponding buttons.
In principle, it is essential to direct the cursor (mouse pointer) to the appropriate position and then click on the left mouse button.


LCD Preview screen

Track Stick to move the cursor

Right mouse button: Freeze Live Video Image

Illumination feature in macro mode On/Off

Left mouse button: OK in Live Video screen

Zoom in/out (only when taking macro images)

> **IMPORTANT**
> - The combination of these two procedures (positioning of the cursor and pressing the left button) will be expressed as <u>Select</u> for easy understanding.
> - To simplify some operations the right button can be used. This operation is useful at various program steps and will be expressed as <u>Press RB</u> in this manual.
> - Never press onto the Track-stick because this could damage the sensors inside. Just smoothly push it to the desired direction.

7.3. Live Video

The Live Video function replaces the traditional hand held dermatoscope. MoleMax HD allows the user to perform an extremely fast screening of patients without the need of immersion oil.
On the system with dual screens Live Video from the MoleMax HD camera is automatically present in the top screen whenever Main Menu of the MoleMax HD software is active. As soon as one function is selected and Main Menu disappears, Live Video becomes inactive as well.
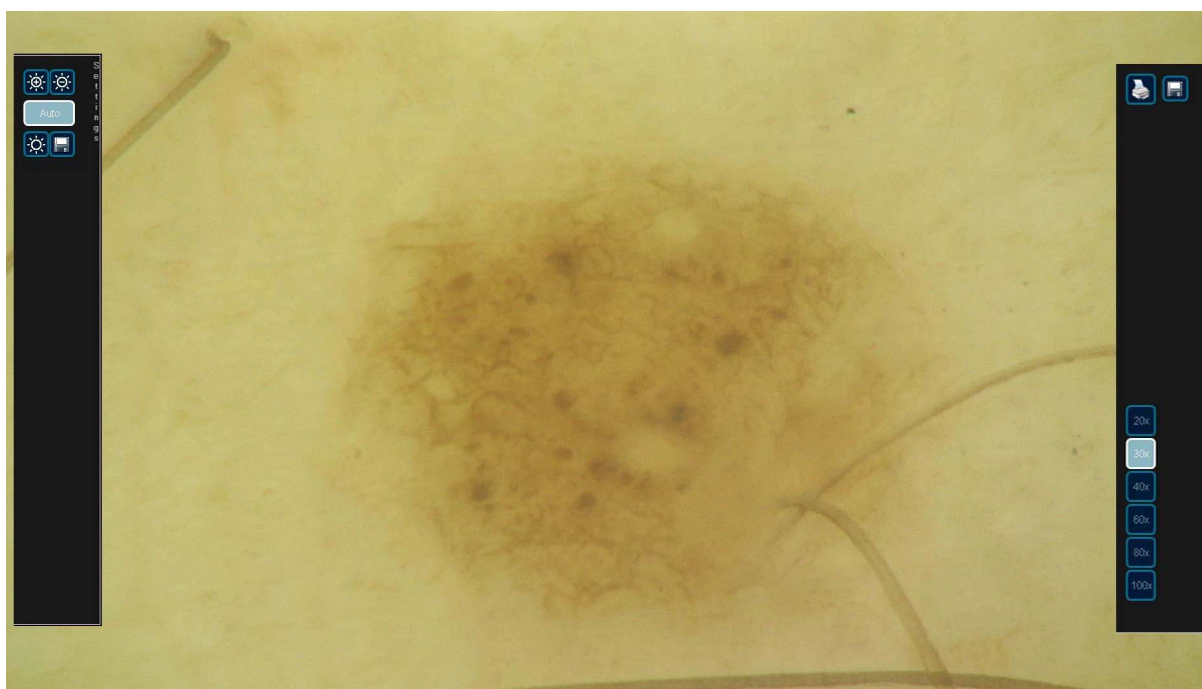
On the system with single screen Live Video can be done by simply using Express Session without using saving option.

Live Video Option offers a possibility to FREEZE, PRINT or SAVE the image to the local drive (Hard Drive or USB Drive, but not to the MoleMax HD Database.

<u>Press RB</u> when mouse pointer is inside Live Video screen to freeze the image.

Click the PRINT button to print the frozen image to default printer or SAVE button to save the image to the hard drive or USB external drive if available.

7.4 Express Session

The Express Session function is designed for the fast image capture. No patient has to be selected from the database and no image is saved in the database. However, if necessary the SAVE function may be used for saving one or more images to the appropriate patient record with option to assign their localization and diagnose later.

Step 1:

To enter Express Session select the icon **EXPRESS SESSION** in the main menu.
Following screen appears while Live Video is shown in the top screen:
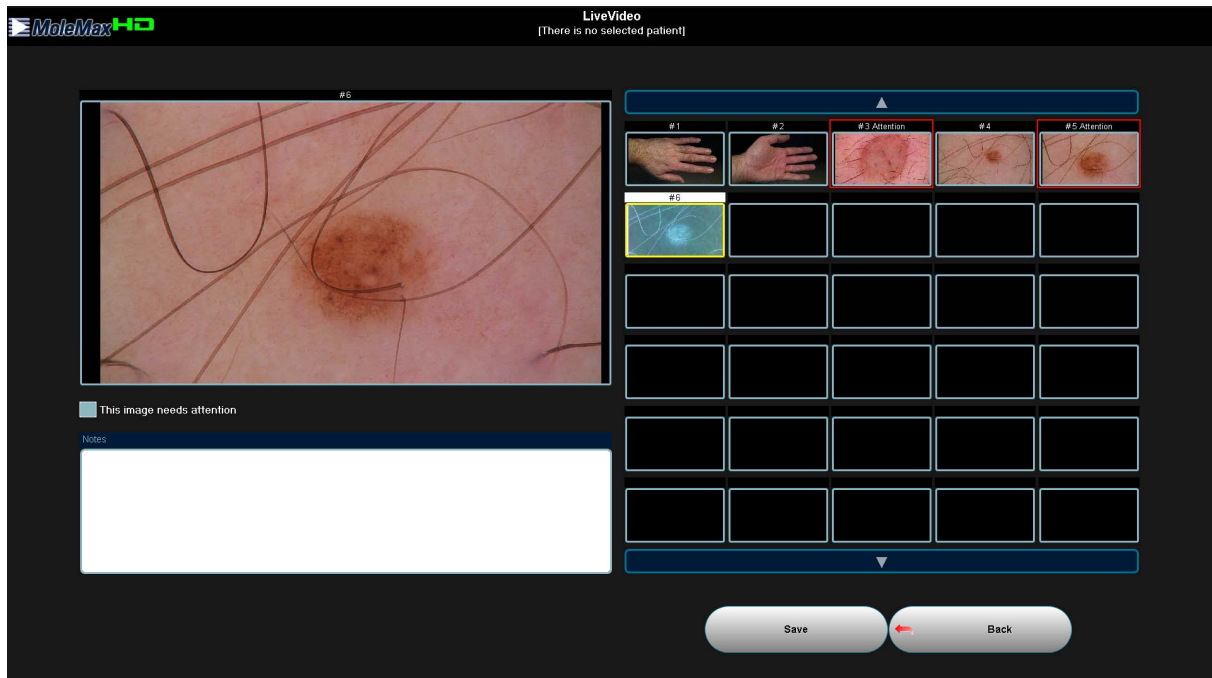
To switch to the DELM camera mode, simply clip the DELM adapter onto the front of the camera. The software automatically zooms to the standard 30x magnification. Make sure that the glass plate of the DELM adapter is properly cleaned. Touch the skin with the ELM camera using gentle touch.

To select other optical magnification than 30x, move the mouse to the left and click one of following   icons

....

If the brightness of the image is not optimal adjust the light by clicking on the sun symbols to the left side of Express Session frame. Move the mouse to the left border of live video to activate this menu.

> **IMPORTANT**
> - Use black ELM adapter for 20x 30x and 40x magnification
> - Use silver ELM adapter for 60x 80x and 100x magnification
> - (Option) Use blue and red adapters for conventional fluid dermoscopy

Step 2:

To freeze the live video select **FREEZE** or move the cursor into the image and press <u>RB</u> or press the <u>Space</u> bar.

REMEMBER

- To capture an image always hold the camera steady for a second after having pressed the button to get a clear image. The processing of the image may take a short moment.
- Always place the lesion at the center of the screen, as the illumination is best in the center.
- To zoom with the macro-camera either use the zoom button on the back of the camera or the up / down (↑↓) keys.
- To return to the live video function either select **LIVE VIDEO**, press <u>RB</u>, or press the Space bar.

Additional features:

Following functions can be executed with the buttons within the selection screen located on the left side of the image (move mouse left from the live video to open and activate selection screen):

Brightness and Contrast ....

To increase or decrease the brightness of the image use the two buttons in the middle. Select the appropriate button and move the cursor into the center of the image until the mouse cursor has the same symbol as the brightness option. Select the image to alter the brightness and contrast.

Auto ....

To reset the brightness and contrast to automatical values click the button AUTO. By selecting this option button is illuminated and optimum values are determined by the camera. Click the button once again to return to manual values

To reset brightness and contrast to defaults simply press …………………...........…………..………

To change defaults set brightness and contrast to desired values and ress…………….………...

SHORTCUTS:

Shortcuts can be used instead of pressing some buttons for faster handling.

- Press <u>RB</u>: to freeze/unfreeze the image (the cursor has to be inside the live video frame)
- Press <u>Space</u>: to freeze/unfreeze the image
- Press <u>Esc</u>: to return to the Main Menu
- Press <u>F10</u>: to return to the Main Menu
- Press <u>(↑↓)</u>: to zoom in/out with the macro camera

Step 3:

If you want to KEEP the image during the EXPRESS SESSION use the button **OK** when the image is frozen. If this Image needs FOLLOW-UP or any other attention click the check box **"THIS IMAGE NEEDS ATTENTION"** before selecting **OK** button. After the image is kept for further attention camera switches automatically from frozen image to live video in the top screen.

Select as many images as needed to KEEP them within EXPRESS SESSION.

IMPORTANT

- Images are KEPT only within Express Session.
- While within Express Session single Images can be PRINTED or EXPORTED to the hard drive or external storage
- In Order to SAVE the images taken within the Express Session these must be assigned to the appropriate Patient.

To export any image from the Express Session to the hard drive or to any external memory

drive select the image and press the export icon …..…………..………..………..……….………..

To print the image from the Express Session select the image and click the printing icon…..….

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To **SAVE** the images kept during the Express Session click the **SAVE** button located on the bottom right side of the screen to assign them to either new patient or to existing patient if already in the database. After saving the images, Express Session can either be continued or finalized.
To return to the main menu select **BACK** or press **F10**.

IMPORTANT
- To access, localize, diagnose and Follow-Up these images use the button "EXPRESS SESSION IMAGES" located in the Patient MENU
- This button is displayed only if Patient has unlocalized images taken and saved thru Express Session Option

7.5. New Patient

This function is used for the first examination of a new patient. If the patient is already in the database always use Select Existing (Patient) function.

Step 1:
Select the icon **NEW PATIENT** in the main menu.
The software moves on to the New Patient window.

Step 2:
New Patient screen is shown below:

The following four lines are mandatory (red colored):

- Last name
- First name
- Date of birth (the format depends on the country settings, the year has to be typed in with 4 digits e.g. 1950, this is very important for patients born before 1929)
- Insurance number

All other information is optional and can be typed in later too.

> **IMPORTANT**
> - Two first or last names of a patient have to be typed with space between the names.
> - To move from one line to the next, move the cursor into the specific line and press the left mouse button or press the TAB key.
> - The Insurance number looks different in different country settings.

Additionally face image can be acquired by clicking on the appropriate icon on the top right side. Live Video or File Import can be chosen to acquire face image. This image is shown in the search screen for easier patient recognition.

Detailed patient data such as address, email, phone number etc can be set up in second card **CONTACT.**

IMPORTANT

▯   The appointment for a follow-up visit needs to be entered in this function.

Select **ADDITIONAL** and enter the date of the follow-up visit. Only a defined follow-up visit date allows the software to check whether the patient has been seen for his scheduled appointment by using patient menu in ADMINISTRATION screen.
Apart from follow-up date family relation index and patient related custom comment can be set up in this screen.

REMEMBER

▯   Two first or last names of a patient have to be typed with space between the names.

▯   It depends on the country settings how to enter the date of birth. Always use 4 digits for the year e.g. 1950. This is very important for patients born before 1929.

▯   To calculate the Risk Group the patient falls into, select the option **MELANOMA RISK** and answer the four questions together with the patient. The result is immediately displayed at the bottom of the screen. There are four possible risk groups (low, average, increased and high risk).

SHORTCUTS:

▯   Press Tab: to move from one line to the next
▯   Press Esc: to return to the main menu
▯   Press F10: to return to the Main Menu

To edit or delete a patient record SERVICES function must be used. This function is accessible from the MoleMax HD start screen.

IMPORTANT

▯   There is no Undo feature.
▯   There is Edit feature in the SERVICES menu accessible from the start screen

Step 3:

Select **LIVE VIDEO** to store the patient in to database and to start taking images for this patient. Alternatively **FILE IMPORT** can be selected by using the arrow on the right side of LIVE VIDEO button.

System enters Live Video (or File Import) function where images can be taken and stored to the patient record.

After patient record is set up patient details are shown on the top right side of the screen!

*Step 3.1 (Taking images by using **LIVE VIDEO**):*

On single screen systems software enters Live Video screen.
On dual screen system video is shown in the top screen.

Live Video always comes from the MoleMax HD System camera. If no ELM adapter is used camera is in macro imaging mode for taking macro images or close-up images. If ELM adapter is attached to the camera, camera is in micro imaging mode for taking ELM images. MoleMax HD software automatically recognizes the recording mode (macro/micro), no further user action is required to determine the camera mode.
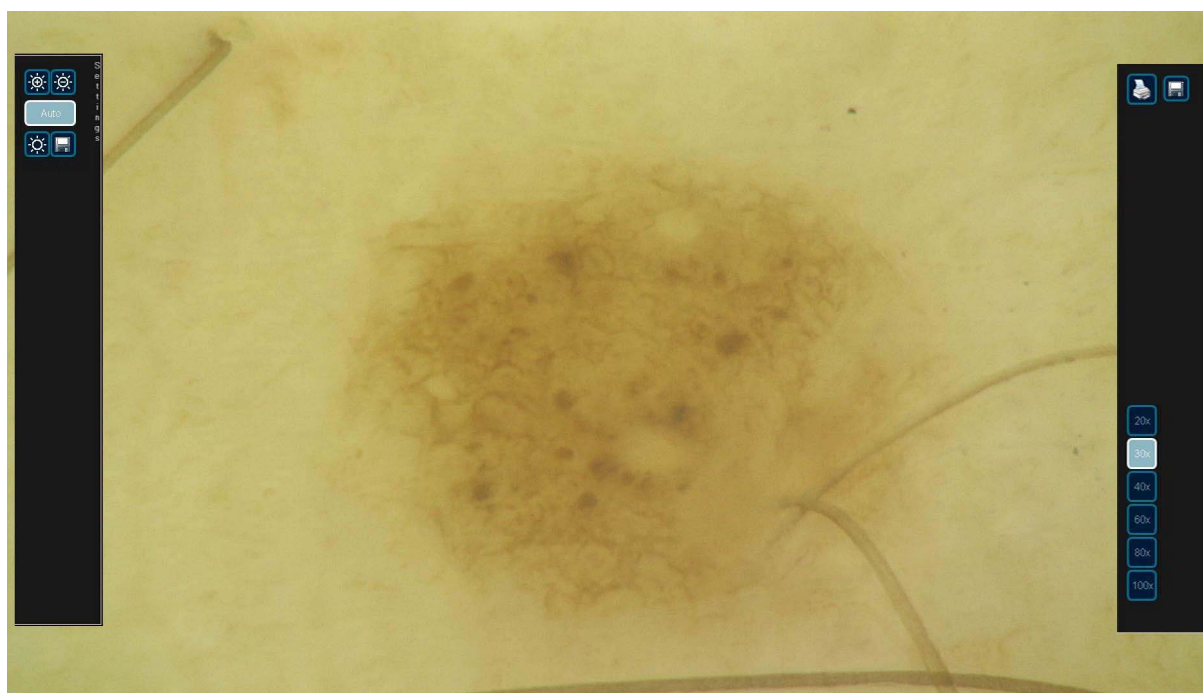
If no ELM adapter is attached to the camera standard Live Video for macro imaging is displayed.

Micro Mode:

To switch to the DELM camera mode, simply clip the DELM adapter onto the front of the camera. The software automatically zooms to the standard 30x magnification. Make sure that the glass plate of the DELM adapter is properly cleaned. Touch the skin with the ELM camera using gentle touch.

To select other optical magnification than 30x, move the mouse to the right to open selection screen and select one of following icons ……………………..…….. 20x 30x 40x 60x 80x 100x

For the 60- 80- 100 times magnification clip the **silver, shorter** adapter on the camera.
If the brightness of the image is not optimal adjust the light by clicking on the sun symbols to the right of the Live Video frame.

	IMPORTANT
!	☑ Use black ELM adapter for 20x 30x and 40x magnification
	☑ Use silver ELM adapter for 60x 80x and 100x magnification
	☑ (Option) Use blue and red adapters for conventional fluid dermoscopy

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It is possible to increase or decrease the light intensity or to reset it to the original value. To alter the contrasts of the image use the contrast symbols in the selection screen. Move the mouse to the left border of Live video screen to activate this menu.

Brightness and Contrast ....
To increase or decrease the brightness of the image use the two buttons in the middle. Select the appropriate button and move the cursor into the center of the image until the mouse cursor has the same symbol as the brightness option. Select the image to alter the brightness and contrast.

Auto ....
To reset the brightness and contrast to automatical values click the button AUTO. By selecting this option button is illuminated and optimum values are determined by the camera. Click the button once again to return to manual values.

To reset brightness and contrast to defaults simply press ……………………………..… ….

To change defaults set brightness and contrast to desired values and press……………..……….

SHORTCUTS:
Shortcuts can be used instead of pressing some buttons for faster handling.

- Press <u>RB</u>: to freeze/unfreeze the image (the cursor has to be inside the live video frame)
- Press <u>Space</u>: to freeze/unfreeze the image
- Press <u>Esc</u>: to return to the Main Menu
- Press <u>F10</u>: to return to the Main Menu
- Press (↑↓): to zoom in/out with the macro camera

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Macro Mode:

Freezing the image:

To freeze the live video select **FREEZE** button on the bottom of the Live Video screen or move the cursor into the image and press <u>RB</u> or press the <u>Space</u> bar. If the frozen image is not satisfying simply redo. To return to the live video function either select **LIVE VIDEO**, press <u>RB</u>, or press the Space bar.

If the frozen image is satisfying, it can be **SAVED** in the following screen. To enter image saving screen press OK or press <u>LB</u> now. Image saving screen is activated. Proceed to *Step 4.*

REMEMBER

- ▣ To capture an image always hold the camera steady for a second after having pressed the button to get a clear image. The processing of the image may take a short moment.
- ▣ Always place the lesion at the center of the screen, as the illumination is best in the center.
- ▣ To zoom with the macro-camera either use the zoom button on the back of the camera or the up / down (↑↓) keys.
- ▣ To help standardizing new and follow-up images, there is the option of always having orientation lines displayed that mark the center of the live video window.
- ▣ To return to the live video function either select **LIVE VIDEO**, press <u>RB</u>, or press the Space bar.

IMPORTANT

- ▣ Always take macro and close-up images and body mapping sessions before the ELM images to have them available for the exact location of the lesions.


SHORTCUTS:
Shortcuts can be used instead of pressing some buttons for faster handling.

- ▣ Press <u>RB</u>: to freeze/unfreeze the image (the cursor has to be inside the live video frame)
- ▣ Press <u>Space</u>: to freeze/unfreeze the image
- ▣ Press <u>Esc</u>: to return to the Main Menu
- ▣ Press <u>F10</u>: to return to the Main Menu
- ▣ Press <u>(↑↓)</u>: to zoom in/out with the macro camera

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*Step 3.2 (Taking images by using **FILE IMPORT**):*

Alternatively to Live Video functions all MoleMax HD systems offer an additional option of image acquire over FILE IMPORT. This function is identical in all MoleMax HD systems.

After selecting IMAGE FILE IMPORT function following screen is displayed:
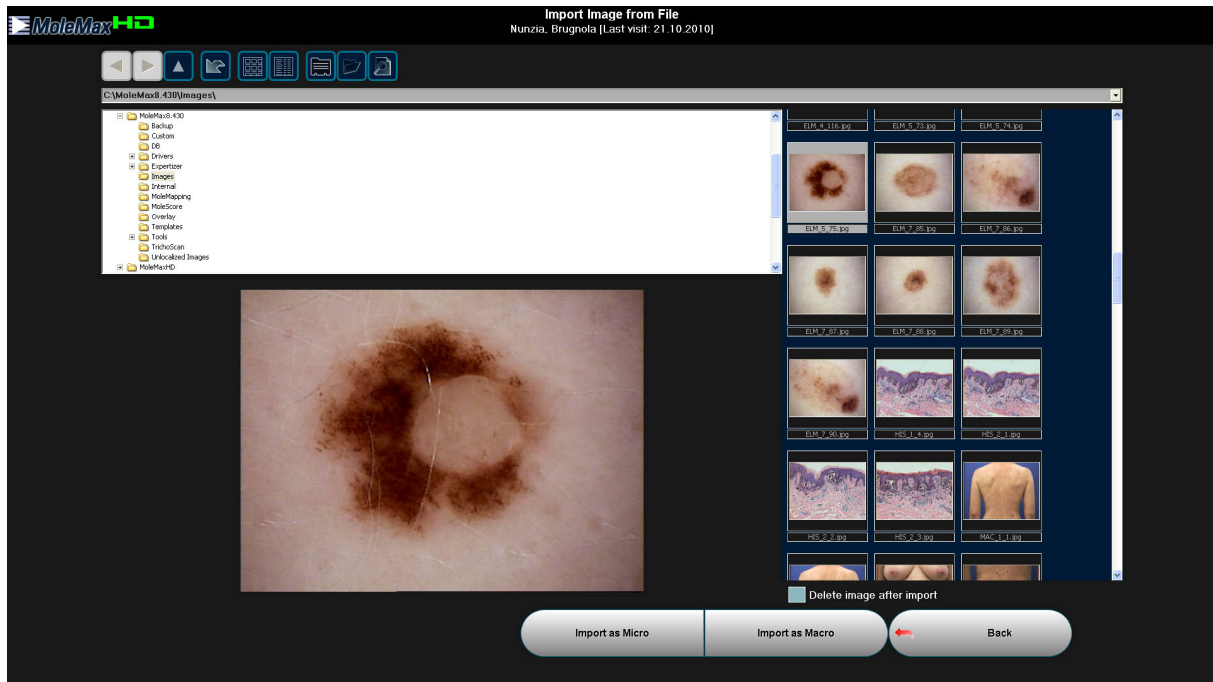
Simply select the file location of the image to be imported and confirm if image is micro image or macro image by clicking on IMPORT AS MICRO or IMPORT AS MACRO buttons. Proceed to *Step 4.*

Current path location is shown in the path bar on the top of the screen and selected image preview is displayed in the big frame. Preview of additional images is displayed in thumbnails on the right side. Arrow buttons on the top are used for the standard Windows Explorer navigation. The button with arrow refreshes the Explorer tree.

The functionality of last 5 icons (from left to right) is following: "Show images from the same folder as thumbnails", "Display only detailed list of the images from the same folder", "Image file properties (properties of selected image)", "Display image in external associated viewer" and "Open containing folder in Windows Explorer (in external window)".

Step 4 (Saving image):

After image is acquired (either using LIVE VIDEO or FILE IMPORT) it must be localized on the body before it is saved into the patient database. Optional comments and diagnose can be assigned to the image. This is done in **DETAILS** screen as shown on the image below.
MoleMax HD systems differ between three basic types of the images: **MACRO, CLOSE-UP** and **MICRO** images.

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(1) Macro Image

Defining the location
Specify the location by framing the corresponding body region on the Body Figure. Note that the Body Figure can be viewed from various directions. There are also separate displays of the head, the hands and the feet. To see the different displays use the scroll icons under the Body Figure. As soon as the position is selected, the corresponding location text will automatically appear in the *Location* bar.

REMEMBER

- If a wrong position was chosen simply redo. If the Body Figure is scrolled after a location is specified, the location needs to be defined again.
- To alter the pre-defined frame move the cursor into the frame until it changes to a black 4-arrow symbol. Keep the left mouse button pressed to move the whole frame. To change the size of the frame move over the sidelines until a two-arrow symbol appears. Keep the left mouse button pressed and move the mouse to change the width or the height of the frame.
- Additional information can be written in the comments box under the *Location* bar. Move the mouse into the box and press the left mouse button to be able to type in your comments.
- As a standard procedure all images are saved in a lossless compressed mode. This saves time and storage capacity.

Please note that only image localization is mandatory and required! All other definitions such as diagnose, comment etc can but do not have to be determined!

Diagnose assignment is same for all three types of image. See *Giving a Diagnosis* below for more details

Select button **SAVE** to save the image. The image is stored into the database and MoleMax HD software returns to the live video and the next image of this patient can be taken.

Giving a diagnosis:

Usually the diagnosis is assigned immediately upon image acquire, but there is also the possibility to enter it later, whenever DETAILS screen is used.

To assign the diagnosis, simply select one of the diagnosis buttons and select one of pre-defined diagnosis by double-clicking on it, and then confirm it with SELECT DIAGNOSIS button! Or simply start to type your diagnosis into the diagnose text field: "MY DIAGNOSIS". Multiple diagnosis can be entered into this box.

There are five Diagnosis buttons: Diagnosis (contains all given diagnosis), Favorites (list of your favorite diagnosis), Recent (list of all recent given diagnosis), All (list of all diagnosis) and All Skin module (external module with the list of all diagnosis including image examples) For more information about All Skin module see Chapter *ALL SKIN.*

To pre-define and customize the list of diagnosis use "Diagnosis Configuration" option located in ADMINISTRATION.

SHORTCUTS:

- Press <u>RB</u>: to get to the next display of the Body Figure (the cursor must be inside the Body Figure)
- <u>Keep RB or LB Pressed on the scrollbar</u>: all displays will be scrolled through automatically until the button is released
- Press <u>F1-F8:</u> to enter the Customized diagnoses (see "Administration → *Diagnoses Configuration*")

If there is intention to send image over email check the DermaNet checkbox. This allows user to search later easily for images to be sent.

Additionally any type of document can be attached to the image record. Simply click the button ATTACH DOCUMENTS" and file import screen will open. Document is stored as an addition to the image in the database. If original of the document should be deleted on the previous location after import simply select "Delete original documents after import"

For easy determination of a lesion size a millimeter grid can be displayed by selecting the grid sign next to the image. The size information can eventually be entered in the comments box. The grid will not be saved with the image.

Full screen view of the image can be recalled by clicking on to image thumbnail on the top left corner of the DETAILS screen.

In the Full Screen view image can be seen in the full screen size, can be zoomed in and out, scrolled in all directions as well as seen in a real size view (pixel per pixel view), by simply selecting appropriate icon on the right side of the image.

(2) Close-Up Image

A close-up image is an additional macro image, which covers only a part of a pre-taken macro overview image.

To take a close-up image, repeat the same procedure (*Step 3*) as for the macro image. To turn on the close-up light press the black button in the left upper corner on the backside of the macro-camera.

Defining the location

IMPORTANT

- A close-up image needs to be defined on the corresponding macro image and not on the Dummy view, the software recognizes automatically that this image is an close-up image and mathematically evaluates the localization on the Dummy.
- Select **MACRO** and choose the appropriate macro overview image. If there are more than four macro images available, use the scrollbar (+/-) to see the following / previous ones. Open the corresponding macro image by selecting it. Mark the appropriate region on the macro image and select **OK** to return to the New Diagnosis window.

REMEMBER

- If a wrong position was chosen simply redo. If the Body Figure is scrolled after a location is specified, the location needs to be defined again.
- To alter the pre-defined frame move the cursor into the frame until it changes to a black 4-arrow symbol. Keep the left mouse button pressed to move the whole frame. To change the size of the frame move over the sidelines until a two-arrow symbol appears. Keep the left mouse button pressed and move the mouse to change the width or the height of the frame.
- Additional information can be written in the comments box under the *Location* bar. Move the mouse into the box and press the left mouse button to be able to type in your comments.
- As a standard procedure all images are saved in a lossless compressed mode. This saves time and storage capacity.

Please note that only image localization is mandatory and required! All other definitions such as diagnose, comment etc can but do not have to be determined!

Diagnose assignment is same for all three types of image. See *Giving a Diagnosis* above for more details. All other functions such as Full Screen view, DermaNet and Attach Documents are identical to those assigned to the macro image.

Select button **SAVE** to save the image. The image is stored into the database and MoleMax HD software returns to the live video and the next image of this patient can be taken.

SHORTCUTS:

- Press RB: to get to the next display of the Body Figure (the cursor must be inside the Body Figure)
- Keep RB or LB Pressed on the scrollbar: all displays will be scrolled through automatically until the button is released
- Press F1-F8: to enter the Customized diagnoses (see "Administration → *Diagnoses Configuration*")

(3) ELM Image

To take an ELM image follow the image taking guidelines in *Step 3* using MoleMax HD camera with DELM adapter attached.

Defining the location on the Body Figure:

Locations of the micro images are stored differently from locations of macro and close-up images. While macro and close-up images are marked and localized as an area on the body, micro images are determined and localized as a single spot on the body.

In order to localize micro image specify the location by marking the corresponding position of the body where the lesion is situated. Note that the Body Figure can be viewed from various directions. There are also separate displays of the head, the hands and the feet. To see the different displays use the scrollbar under the Body Figure

As soon as the position is selected, the corresponding location text will automatically appear in the *Location* bar.

REMEMBER

- If a wrong position was chosen simply redo. If the Body Figure is scrolled after a location is specified, the location needs to be defined again.
- Smaller gray crosses mark other lesions that were localized on the same Body Figure display. This allows localizing the lesion in relation to other lesions on the body.

Defining the location on a Macro or Close-Up Image

If a corresponding macro or close-up image was taken earlier, the location of the lesion can, in addition to the localization on the Body Figure, also be defined on that image. Select **MACRO** button in the top left corner of the DETAILS screen to define the lesion on a macro or close up image.

The macro images are displayed in the left column, the close-up images in the right column, as showed on the image above.

If there are more than two images available, use the scrollbar underneath the appropriate column to see the next / previous images. Choose the appropriate macro or close-up image and select it. Mark the corresponding lesion on the macro or close-up image and select **OK** to return to the New Diagnosis window.

In order to make sure that the position is set on the correct macro or close-up image, the other images linked to the selected image are displayed to the right. If a macro image is selected the related close-up images defined on the macro overview image are listed. In the large view of the macro image the frames showing the positions of the close-ups as well as their image numbers are displayed. To localize the ELM on a better-suited close-up image select the appropriate close-up on the right and mark the ELM position on it.

If a close-up image is selected the related macro overview image and other close-ups also located on that macro image are listed. In the large view of the macro image the frames showing the positions of the close-ups as well as their image numbers are displayed. To localize the ELM on a better-suited close-up image or directly on the macro overview select the appropriate image on the right and mark the ELM position on it.

REMEMBER

- If a wrong position was chosen simply redo.
- Gray circles mark other lesions that were localized on the same macro or close-up image.

Defining the location on a Body Mapping Image
If a correlating body mapping session was taken earlier, the location of the lesion can, in addition to the localization on the Body Figure, also be defined on that body mapping image. Select **BODYMAP** to define the lesion on a macro image taken in the Body Mapping function (this button is only visible if there is a Bodymapping series existing from the selected patient).

Use the scrollbar to see the next / previous body mapping images. Choose the appropriate body-mapping image and select it. Mark the corresponding lesion on the body mapping image and select **OK** to return to the New Diagnosis window.

REMEMBER

- If a wrong position was chosen simply redo.
- If you want to do scoring use scoring button in the middle of the bottom bar

Please note that only image localization is mandatory and required! All other definitions such as diagnose, comment etc can but do not have to be determined!

Diagnose assignment is same for all three types of image. See *Giving a Diagnosis* above for more details. All other functions such as full Screen view, DermaNet and Attach Documents are identical to those assigned to the macro image.

Additionally two more functions can be applied to micro images.
Field "EXCISION PLANNED" marks that this image should be cut out in the near future. It allows user to search later easily for images to be cut out.

Select button **SAVE** to save the image. The image is stored into the database and MoleMax HD software returns to the live video and the next image of this patient can be taken.

REMEMBER

- If the ELM image has not been defined on the Body Figure and/or on a macro/close-up/body mapping image the corresponding button is highlighted in red. After the definition the button turns white.
- The examination date is preset.
- Additional information can be written in the comments box under the *Location* bar. Move the mouse into the box and press the left mouse button to be able to type in your comments.
- As a standard procedure all images are saved in a lossless compressed mode. This saves time and storage capacity.
- To evaluate the lesion interactively according to the ABCD method or the 7-Point rule select **SCORING**. Same applies if using external TrichoScan or MoleScore modules for automatical image evaluation.

Step 5 (Finalizing the patient):

After all images are recorded exit to the Patient Menu Screen either by using F10 or Escape button. In the patient menu screen further actions (described later in this manual) can be performed.

If no other actions with this patient are planned simply exit to the main menu by using **F10**.

7.6. Select Existing (Patient)

From second patient visit on option Select Existing (Patient) my be used. No matter if patient record has images or not, if the patient is already in the database all patient-related functions can be performed from Patient Menu screen.

Existing Patient can be selected either directly from the Main Menu or over advanced search functions by clicking the button **SELECT EXISTING**

(1) Fast patient search directly from the Main Menu

Any patient selection can be done directly from the Main Menu by using the search fields.

Input the patient data in one of the search fields and all matching patients will show up in the list automatically. If the patient is highlighted pop-up balloon with additional data will be shown. If there is face image acquired, this image will be shown right next to search fields.

Select the Patient and choose one of following options:

- Select Patient to enter Patient Menu screen.
  (Further actions will be selected within this screen)
- Follow Up / Monitoring
  (Follow Up screen is shown directly skipping Patient Menu screen)

The bar at the top of the screen indicates the selected and active patient. All functions entered will be saved to this patient's record. The date of the last visit of this patient is also displayed.

REMEMBER

- Search results are automatically updated and shown during input
- If the patient has face image it will be shown on the screen
- Patient details of selected patient are shown within info balloon

(2) Advanced Search for a patient

Select button **EXISTING PATIENT** from the Main Menu. **SIMPLE** patient selection screen with following options is displayed:

- Either select the button of the first letter of the patient's Last Name or
- Type in parts of the last name and/or first name and/or insurance number in the corresponding line and select **SEARCH** or
- Clear all input fields and select **SEARCH** to search the complete patient list.

Select the Patient and choose one of following options:

- Select Patient to enter Patient Menu screen.
  (Further actions will be selected within this screen)
- Follow Up / Monitoring
  (Follow Up screen is shown directly skipping Patient Menu screen)

SHORTCUTS:

- Simply move the mouse over the patient name and patient is highlighted!

- Double-click on the patient's name: to select the patient and to enter the Patient Menu screen

- Face image of highlighted patient is shown in the box right next to the patient list (if available)
- Press Esc: to return to the Main Menu
- Press F10: to return to the Main Menu

The bar at the top of the screen indicates the selected and active patient. All functions entered will be saved to this patient's record. The date of the last visit of this patient is also displayed.

To enter advanced search options select button **ADVANCED**

ADVANCED patient selection screen with advanced search options is displayed. Select **ADD QUERY** button to create your own query.

In advanced search mode every user can create one or more of his own fully flexible search queries. All data contained in the database, such as diagnoses, geographical data, age, number of follow ups, attached documents, bodymap sessions etc can be included in the query.

Every Query can be pre-defined and saved, to be used in the future by simple selection in advanced search screen.

After search is completed select the patient and confirm with OK to enter Patient Menu.

To exit ADVANCED search and go back to SIMPLE search click first button CANCEL followed by clicking the button SIMPLE.

7.7. Patient Menu Screen

After patient is selected following Patient Menu screen appears.
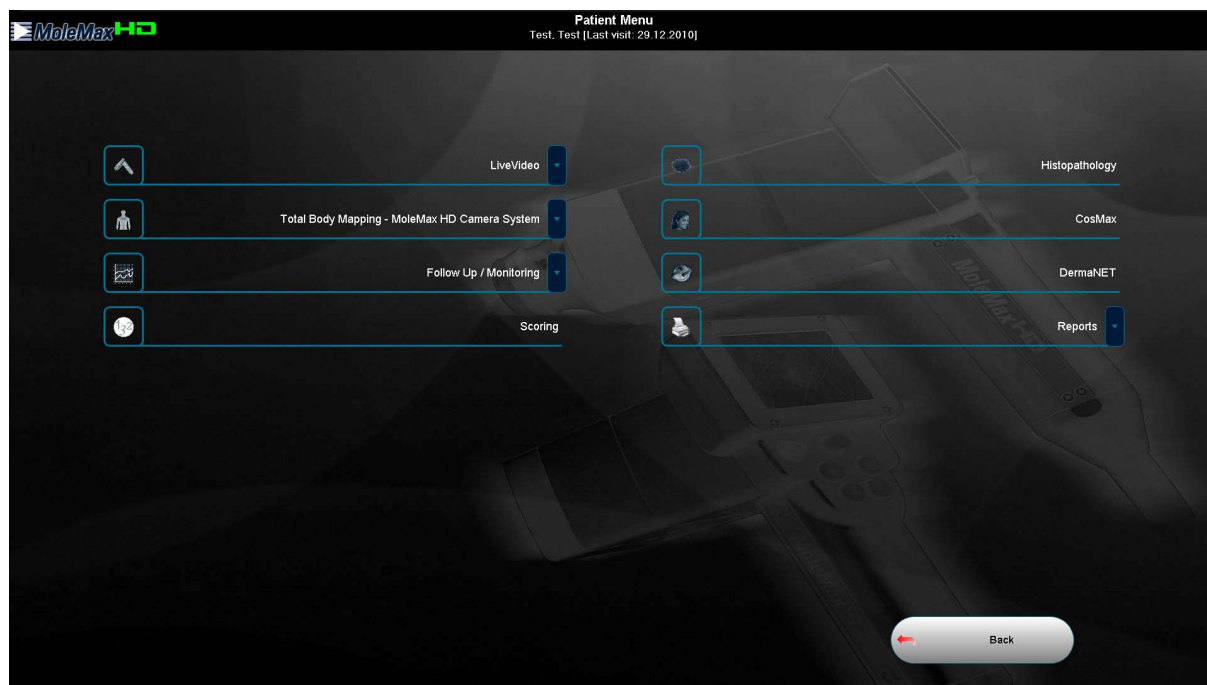
This is main and central patient switching point that contains all the necessary functions for a full and comprehensive patient management. All important functions can be accessed from this menu.

The bar at the top of the screen indicates the selected and active patient. All functions entered will be saved to this patient's record. The date of the last visit of this patient is also displayed.

The easy-to-use **icons** have the following functions:

Live Video / Image file Import	Function for adding images of new moles to the existing patient
Total Body Mapping	Total body mapping function for complete body photography, using either MoleMax HD video camera or digital still camera
Follow Up / Monitoring	All follow up examinations of a patient (follow up of lesions, follow-up macro and close-up images as well as new images of new lesions and new macros and close-ups) enhanced with Trending function and Clinical Audit.
Scoring	Interactive evaluation of the lesion according to the ABCD method or the 7-Point. Also to apply external TrichoScan, MoleMapping or MoleScore modules for automatical image evaluation.
Histopathology	Import and management of histopathological images
Report	Printout for documentation
DermaNet	Transmission of images and data files via Email or HTTP
CosMax	Module for simulating the results of cosmetic aesthetics treatments

7.7.1. Follow Up / Monitoring

This is essential function of any MoleMax HD system and is used for all follow-up visits of a patient.

7.7.1.1. Standard Follow Up / Monitoring

That includes follow-up images of already examined ELM, close-up or macro images as well as new ELM, close-up and macro images that were not taken at the first visit. Furthermore Trending and Clinical Audit functions for complete and detailed evaluation of the development of one lesion over time are accessible thru Follow-Up option.

In the Follow-Up mode it is not only possible to compare two stored images but also to compare any stored image with an actual live video image.

> **IMPORTANT**
> - Always take new images of already examined lesions or body regions within the *Follow-Up* function. Only that gives the possibility to view all images of a lesion or a body region, taken over a period of time, in the picture gallery (see *"History"*).
> - Follow-Up body mapping sessions (consisting of 33 or 10 images) have to be made within the *"Total Bodymap"* function.

Step 1 (Image selection for Follow-Up):

Select the button **FOLLOW UP** in the Patient Menu. Depending on the individual setting the software moves on to the **3x3**, the **Macro and Close-Up** images, or the **Dummy** display of the patient's sheet.
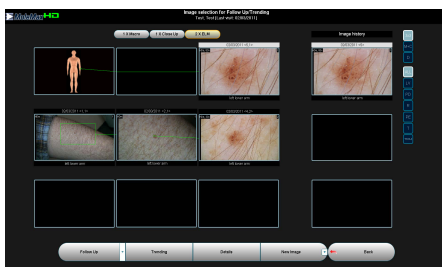
3×3 Display	**Macro** and **Close-Up** Display	**Dummy** Display
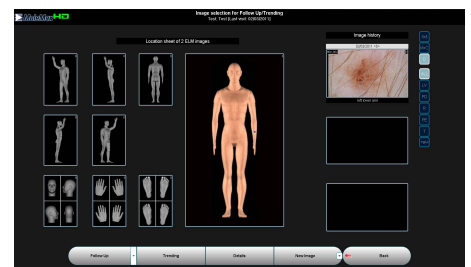
> **IMPORTANT**
> - All image of the patient are visible only in 3x3 mode
> - Only micro or macro and close-up images are visible in dummy and macro/close-up modes respectively
> - Previous recordings (old pre follow-up images) are visible only in fourth column

Within the Follow Up screen it is very easy to switch fast between these three views. This is simply done by clicking on appropriate button located in the top right corner.

3×3 Display ....

In the 3×3 Display, the macro images are displayed in the left column, the close-up images in the center column and the ELM images in the right column. Each row shows a specific link between a macro image and/or a close-up image and/or an ELM image. The images are sorted descending by the examination date of the ELM images. Use the arrows at the right bottom and the left top to see the next / previous images.

In the fourth column history of selected image is displayed. If there are more than three recordings in the history scrolling arrows are visible.

REMEMBER

- The green line shows where the ELM image is located on the corresponding macro or close-up image, respectively where the close-up image is located on the corresponding macro image.
- If the ELM image was not defined on a macro image the corresponding Body Figure (Dummy) position is displayed.
- Above the columns the total numbers of the different Macro, Close-Up and ELM images in the patient's file are displayed.
- If more information about an image is needed or a correction has to be made, select the image and select **DETAILS**.
- The first number in brackets on top of each image indicates the picture number; the second how many follow-ups of this image have already been taken.
- The images of each image type (macro, close-up or ELM) are numbered ascending within the patient file. The numbers are however not fixed, but vary depending on the chosen sorting criterion.

Additional features

- Finding and Selecting specific close-ups and ELM images
- Sorting
- Filtering specific images

Finding and Selecting specific close-up and ELM images

To select a specific close-up or ELM image move the cursor over the corresponding macro or close-up image and press RB.
Please note that following up one ELM image can only be done using same magnification (20x 30x 40x 60x 80x 100x) as original image. If imported ELM image is selected for Follow-Up warning message is displayed.

IMPORTANT
Selecting specific close-up and ELM images
To select a specific close-up or ELM image move the cursor over the corresponding macro or close-up image and press RB

Selecting a specific ELM image
If more than one ELM image was defined on the same macro or close-up image it might be useful to enlarge the specific image and directly select the lesion that should be followed-up.

In case close-up images as well as ELM images were defined on the same macro overview, select the DELM location symbol to see all positions of ELM images on the enlarged macro image. Select the specific lesion. The selected image appears green. Select **OK** to return. The selected image is highlighted.

Selecting a specific close-up image
If more than one close-up image was defined on the same macro image it might be useful to enlarge the specific image and directly select the close-up image that should be followed-up.

In case close-up images as well as ELM images were defined on the same macro overview, select the close-up location symbol to see all positions of close-up images. Select the specific close-up. The selected image appears in color on the black and white macro. Select **OK** to return. The selected image is highlighted.

Sorting

It is possible to sort the images descending by the macro image examination date, the close-up image examination date or the ELM image examination date (default setting).

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Select **Macro**, **Close-Up**, or **ELM** buttons located on the top to see all images sorted from the last image taken to the first image taken according to the examination dates in that column. The respective button above the columns is highlighted.

Filtering specific images

In the case of patient files with many images it can be helpful to have only images of a specific category displayed to find a specific image more easily. The following categories can be selected:

All images (default setting)

Images taken at **L**ast **V**isit

Images with **P**ending **D**iagnoses

Lesions at **R**isk (not available in the "Macro and Close-Up images" display)

Planned **E**xcisions (not available in the "Macro and Close-Up images" display)

Images selected for **T**eleconsulting per DermaNet

Total BodyMap images

Macro and Close-Up images Display ....

In the Macro and Close-Up images display, only the macro and close-up images of this patient are shown. The macro images are framed in white color, the close-up images in green. The latest macro is displayed on the left top corner. The other macros follow to the right in descending order according to their image number. If close-ups are defined on a macro overview image they are shown right after the corresponding macro. Use the arrows at the right bottom and the left top to see the next / previous images.

REMEMBER

- The green frames show where the close-up images are located on the corresponding macro image.
- On top of the sheet the total numbers of the different Macro and Close-Up images in the patient's file are displayed.
- If more information about an image is needed or a correction has to be made, select the image and select **DETAILS**.
- The first number in brackets on top of each image indicates the picture number; the second how many follow-ups of this image have already been taken.
- The images of each image type (macro or close-up) are numbered ascending within the patient file. The numbers of macro images are displayed in white, the numbers of the close-ups in green.

Additional features

- Selecting a specific close-up image
- Filtering specific images

Selecting a specific close-up image

If more than one close-up image was defined on the same macro image it might be useful to enlarge the specific image and directly select the close-up image that should be followed-up.

To select a specific close-up move the cursor over the corresponding macro overview image and press RB to enlarge it. Select the specific close-up. The selected image appears in color on the black and white macro. Select **OK** to return. The selected image is highlighted.

Filtering specific images

In the case of patient files with many images it can be helpful to have only images of a specific category displayed to find a specific image more easily. See above for the functions of the various filters.

Dummy (Body Figure) Display ....

In the Dummy Display, only the locations of the ELM images of this patient are displayed either by crosses or by circles if they correspond with a macro image. The selected lesion is indicated by the dark blue cross or circle and is displayed in the right upper corner. To change to another Body Figure display select the appropriate small view on the side and it is enlarged in the center.

REMEMBER

- Lesions can only be selected in the enlarged view in the center.
- The colors of the crosses and circles depend on the diagnosis given. White ones indicate benign lesions; red ones lesions at risk, yellow ones indicate a Diagnosis Pending and black ones mark excised lesions.
- Above the body figure displays the total number of ELM images in the patient's file is shown. Within each Dummy Display a number shows how many lesions are localized on this display.
- If more information about an image is needed or a correction has to be made, Select the image and Select **DETAILS**.
- The first number in brackets on top of the selected image indicates the picture number; the second how many follow-ups of this image have already been taken.

Additional features

- Filtering specific ELM images

Filtering specific ELM images
In the case of patient files with many images it can be helpful to have only images of a specific category displayed to find a specific image more easily. See above for the functions of the various filters.

Step 2 (Follow Up With Live Video):

Find and select the image to follow-up by using instructions from above. Select **FOLLOW UP** button to proceed.

IMPORTANT
- Every image of the patient is controlled (within follow-up) with the same camera as originally used
- Still, every image can still be controlled by using any camera (previous selection needed)

If follow-up is to be done with different camera than originally first select appropriate follow-up mode by clicking arrow on the right side of Follow-Up button (located on the left bottom corner of Follow-Up screen) and then select Live Video or Image File Import.
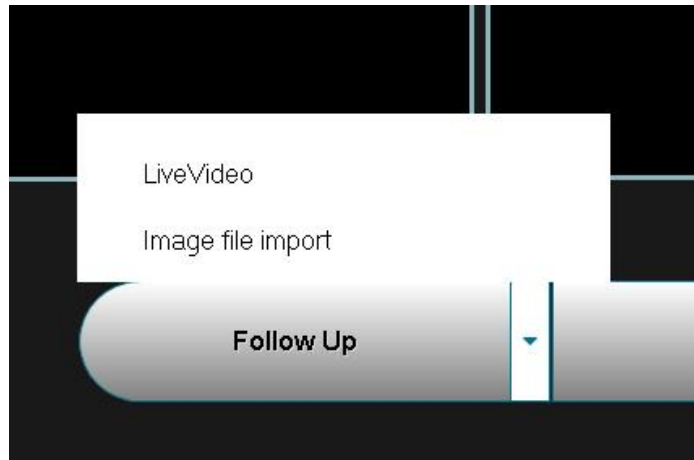

REMEMBER

- Lesions are always automatically followed-up using same image source as originally recorded
- Optionally "Direct Import from digital camera" and "TWAIN Import" can be selected if available and enabled within Administration screen.

Automatically the latest image is compared to live video image. To compare live video image to one of previous recordings of the same image (one of pre follow-up images) simply select this recording in the fourth column. Three latest recordings are visible in the Follow-Up screen, more images (if available) can be accessed by clicking on the arrow icons.

Follow-Up selection screen (with selection options) is shown on the following image:
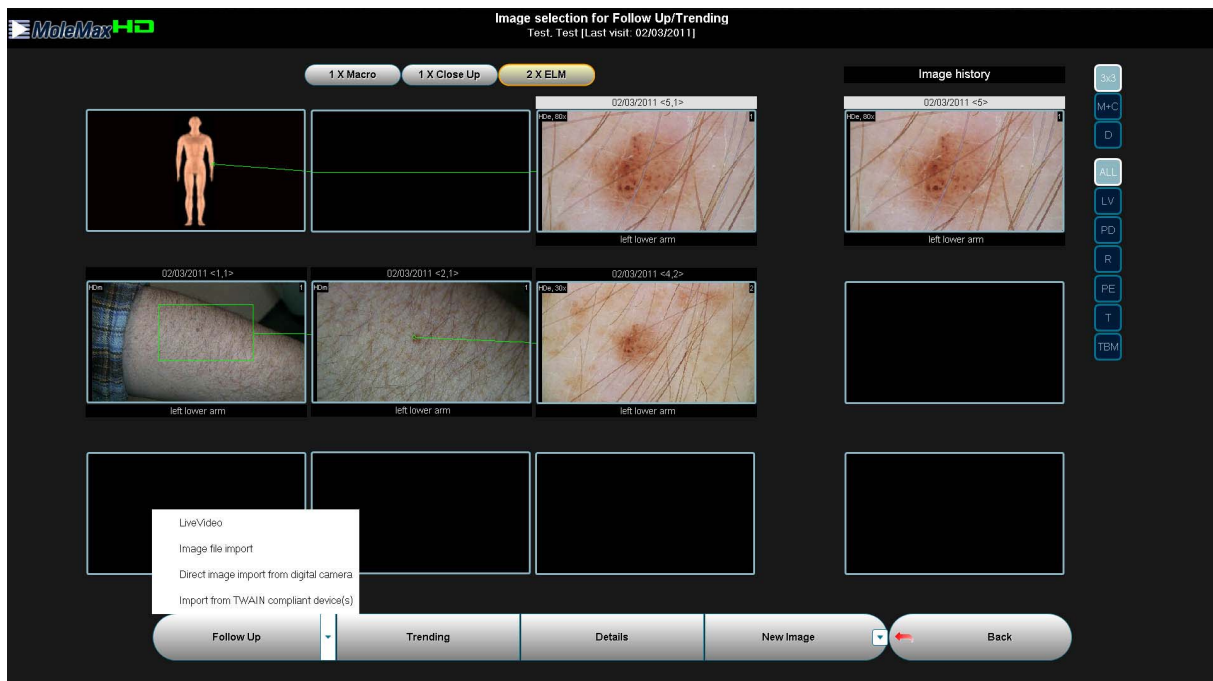
After clicking Follow-Up button Follow-Up Live Video screen appears.
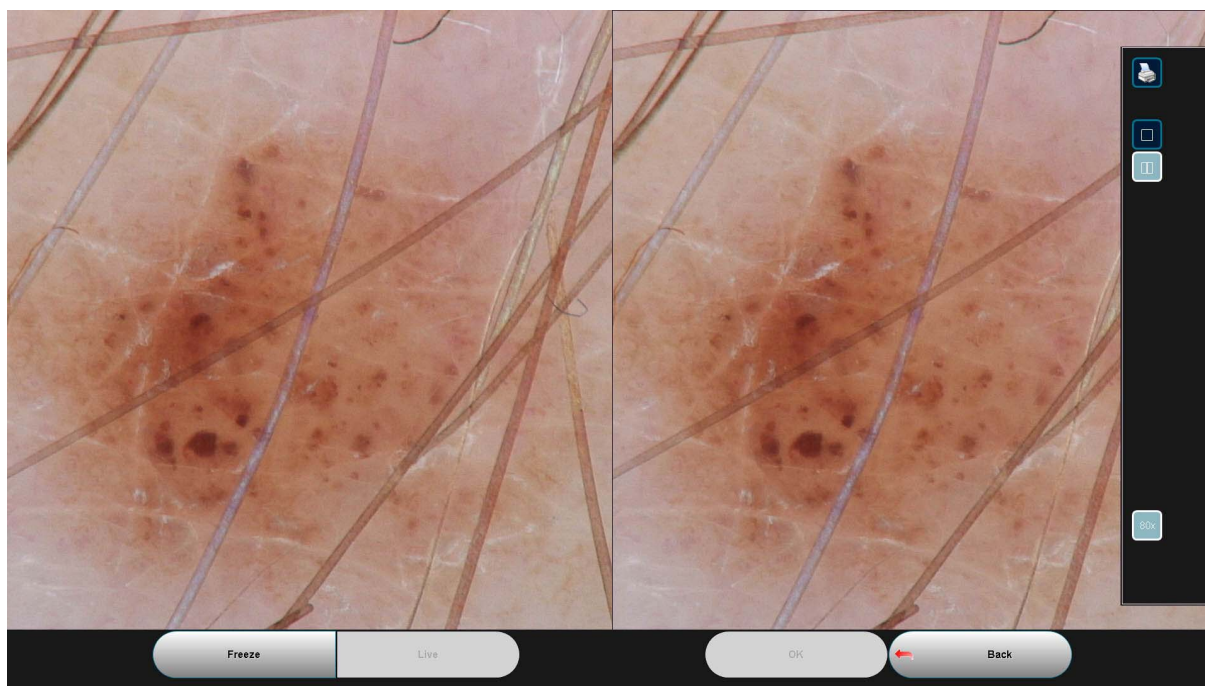
Please note, when using two screens, while taking Follow-Up image the lower screen is blocked and following image appears:
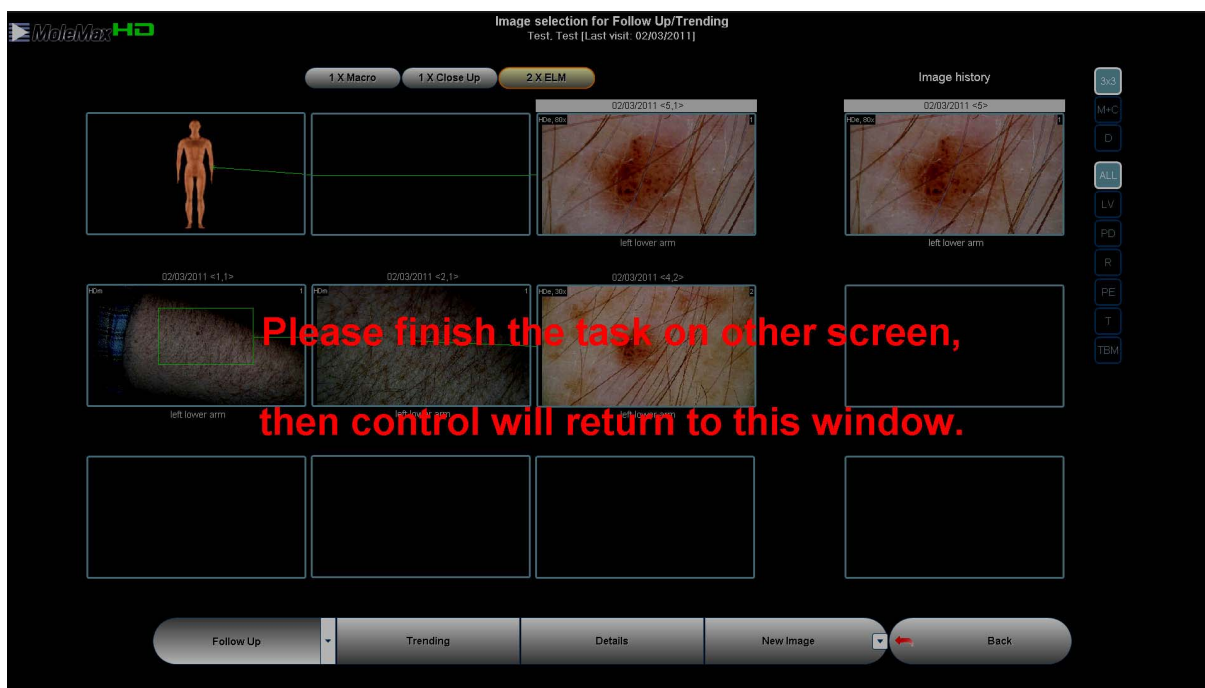
Screen is activated again after the task (taking image or canceling the action) in top screen is finished.

IMPORTANT
- Follow up of macro images can not be done with camera in micro mode
- Follow up of micro images can not be done with camera in macro mode

When Live Video is used, there are two different ways to take a follow-up:

- Full Screen mode
- Compare mode for side-by-side comparison of a stored image with the actual live video (default setting)

IMPORTANT
- When doing Follow UP character of each image (the way how image is obtained) is described within the image thumbnail in the top left corner of the image. **HDe** (MoleMax HD camera with ELM adapter – micro image) **IMP** (imported over file import) and **HDm** (MoleMax HD camera - macro image)
- **Magnification** of the micro image is also displayed next to character values

REMEMBER
- The software can be configured in that way that it does not automatically proceed to the Compare mode (as per default) but directly either to the Full Screen or Overlay mode

IMPORTANT
- If Image Import is used old image is scaled to fit the screen and displayed next to image selected for import.
- If ELM adapter is used for stored image, follow up can ONLY be done by using the same magnification!

Full Screen mode..
To get into the Full Screen Mode select the corresponding symbol to the right of the live video frame. To freeze the live video select **FREEZE**. Select **OK** to proceed.

Compare mode (default)...
To get into the Compare Mode select the corresponding symbol to the right of the live video frame. On the left picture-half the stored image is shown. To freeze the live video select **FREEZE**. Select **OK** to proceed.

REMEMBER
- To move the image on the left take the cursor into the image until it changes to a big arrow symbol and press the mouse button. The image will be moved into the direction displayed by the arrow.

Step 3 (Saving the image):

After clicking **OK** button DETAILS screen is shown.

To save time in the follow up examinations the mouse pointer is positioned automatically on the next logical step.
Select either **OK** to save the image.

The program returns to the Image Listing window and the next image is automatically selected. Redo *Steps 2* to *4* to follow up this image.

REMEMBER

- The localization is already pre-set. Give a new diagnosis if necessary. For a more detailed description see *Giving a diagnose* in New Patient.
- If the box *Excision planned* was activated at the last examination it will be automatically activated in the follow up examination. This ensures a continuous history of a lesion.
- Images that have been followed-up are labeled by a dark red localization text underneath the image.

7.7.1.2. Guided Follow Up / Monitoring

The faster option to do follow-up (for experienced users) is called **Guided Follow-Up**.

For following up all images of a specific type (ELM, macro or close-up) this guided follow-up procedure is available. Select an ELM, macro or close-up image in the patient's sheet and select **DETAILS**. Starting by selecting latest image is recommended because of numeration of images within guided follow-up.

Select **FOLLOW UP** to start the examination procedure. Take the follow up image as described in previous section (Standard Follow-Up). By clicking the right mouse button the live video image gets frozen and clicking on the left mouse button afterwards brings you to the next step in the examination routine (Mouse has to be within live video to enable these **LB** and **RB** shortcuts).

To save time in the examination the mouse pointer is positioned automatically on the next logical step, which eliminates the time-consuming mouse movements. The steps in the examination just have to be confirmed by clicking the left mouse button.

After entering back the DETAILS screen new image is ready to be saved.

Select **SAVE** and the next image to follow up is shown and mouse moves automatically to FollowUp button. Repeat the procedure until the last image is followed up and the software returns to the patient's sheet.

REMEMBER
- To skip an image for follow-up select **SKIP** button located right from the image thumbnail in the top left corner of the screen.
- It is possible to manually scroll between the images by using arrow buttons located right from the image thumbnail in the top left corner of the screen

7.7.1.3 New image within Follow Up

New Image
In order not having to switch between functions it is possible to record new images during a follow up visit of a patient directly within the Follow Up function. In such a case, select **NEW IMAGE** button in the patient's sheet to get to the live video mode.
Click on the **arrow** located on the right side of **NEW IMAGE** button to select between LIVE VIDEO and IMAGE FILE IMPORT, as well as "Direct Import from digital camera" and "TWAIN Import" if available and enabled within Administration screen

Take the new macro, close-up and/or ELM image as described in New Patient section in the beginning of this manual.
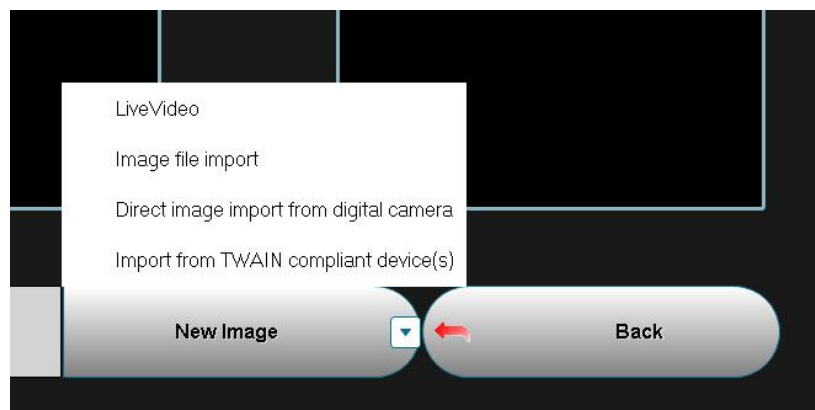
IMPORTANT
- Always take "new" images of already existing images of lesions or body regions in the Follow up live video mode as described above in (1) Follow Up.

Use the **CANCEL** button to return to the Patient Main Menu or simply press **F10**.

7.7.1.4 Compare Saved Images

In order to compare two already saved images select two recordings in the fourth (history) column in Follow-Uo selection screen. As soon as two images are selected button **COMPARE** appears instead of button DETAILS in the middle of the bottom bar. By clicking this button following screen appears:
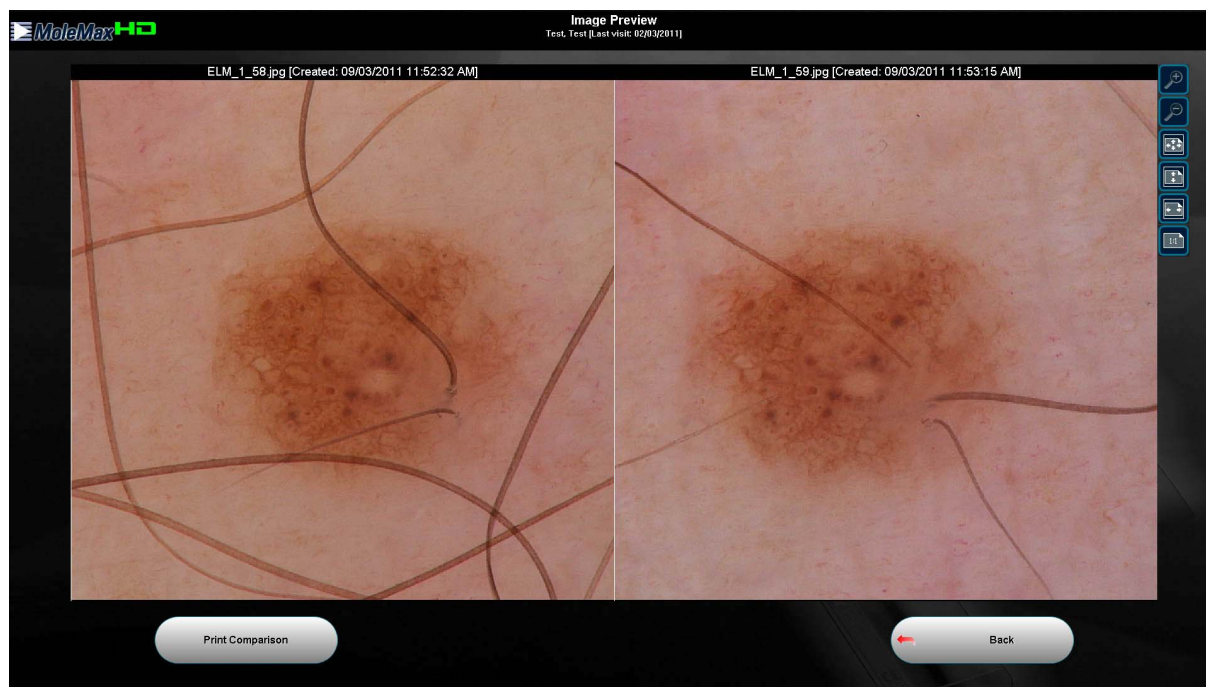
IMPORTANT
In order to activate COMPARE button within Follow-Up selection screen TWO recordings of the same image must be selected in the fourth (history) column.

REMEMBER
Older image is always shown on the lest side of the screen
It is possible to zoom, scroll and move images by using appropriate buttons on the top right side of the screen
Use zoom buttons on the top right corner to zoom images in and out
Use Button 1:1 to display the images in their NATIVE resolution pixel per pixel
Use Full Size and Scaled Size buttons on the top right side to display images side by side respectively

Use Print Comparison Button to print the image comparison. Different as within Report function in this function images are printed two per page.

Select Back Button to go back to Follow-Up screen or F10 to return to Main Menu.

7.7.1.5 Trending

Select a single ELM image and click on button **TRENDING** (located in the middle of the function bar in the Follow-Up selection screen) in order to view more detailed image history. This includes all details such as all given diagnosis, all scores done in the past, and complete evolution of the image over time is introduced.
Furthermore within TRENDING, module histopathological image can be imported (This is also possible by using separate Histo module too) and complete Clinical Audit can be done.

After clicking on TRENDING button following screen appears:
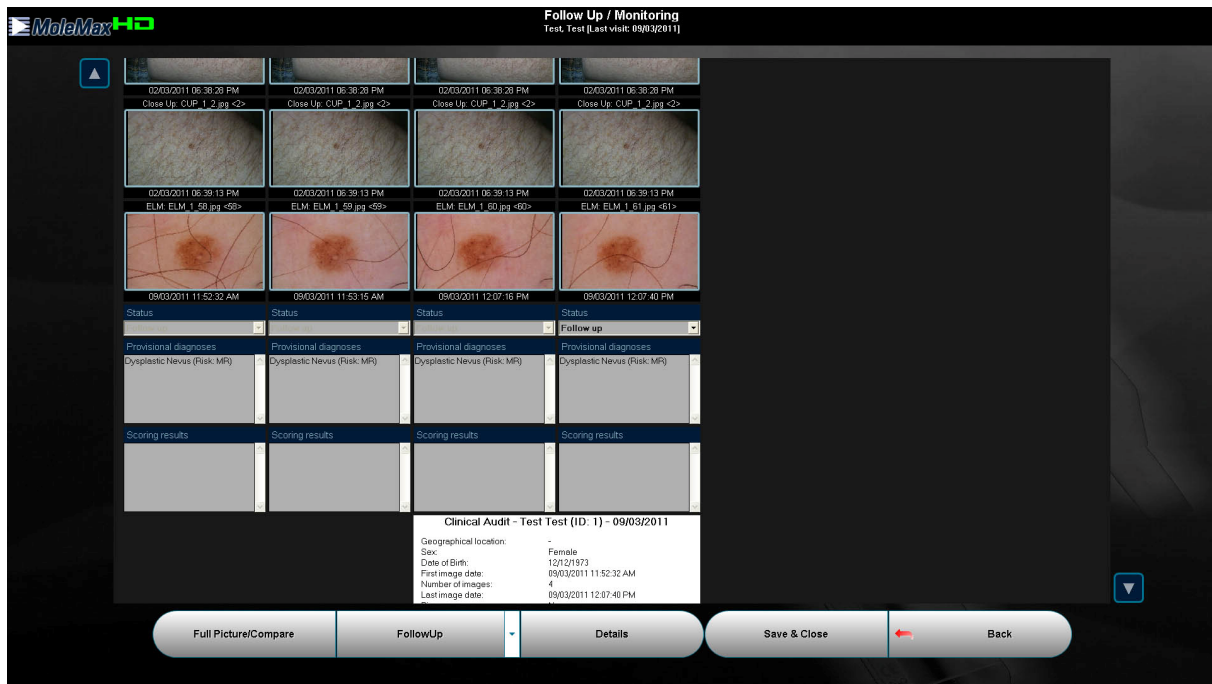
The whole image history can be viewed within this screen. In the top row macro images are displayed, in the middle row close-ups and in the bottom row development of ELM image over time is visible. Below the ELM images status of the mole checkup at the time of taking the image is show. Development of diagnose is visible in the field underneath, as well as all scoring results and comments.

Status of the mole checkup can be changed in this screen. Simply click on the arrow of the tool box and following options appear:
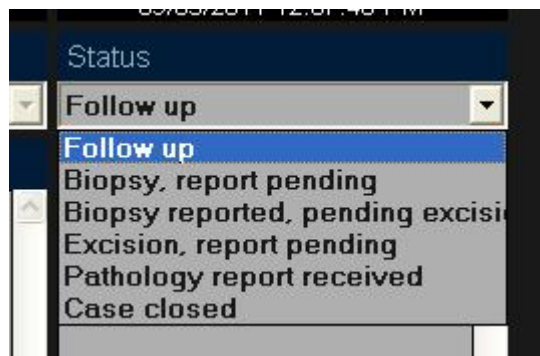
According to the current status of mole examination and action taken appropriate action can be selected here. If Histopathology action is taken or (being taken) black window with space reserved for histopathological image appears.

By clicking on this window another screen HISTO screen appears and histopathological image (if available) can be imported now.

By clicking the button IMPORT standard import screen appears.
Choose now correct path to the location where histopathological images are archived and select the correct histo image. Confirm with OK and image will be imported as HISTO image linked to the current ELM image.

Text from histopathological report can also be copied from the appropriate document (if available) in the field Histopathological Report.

Following fields are mandatory:

- Dermatological diagnosis
- Dermatological diagnosis

Comment field is may be filled if necessary. Confirm import of histo image and return to complete the image TRENDING clicking on **SAVE**.

After histo image is attached to the ELM recording following items are displayed in the bottom right corner of the TRENDING screen as shown on the following image
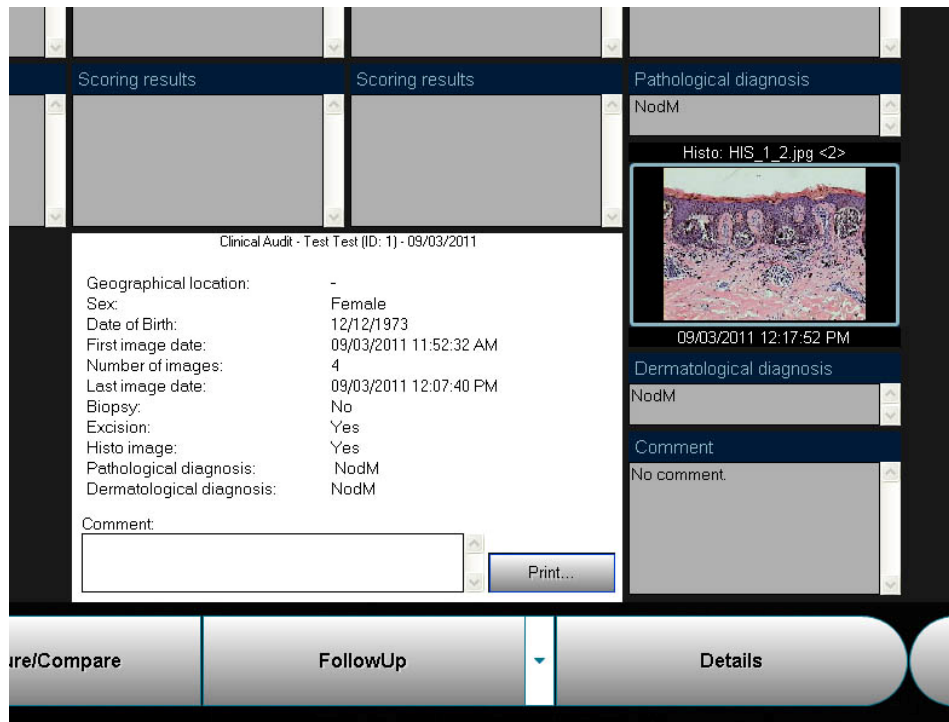
Histo image is displayed and Clinical Audit comment field is ready for final comment. By clicking the **PRINT** button TRENDING printout is printed (in order to do this local or network printer must be installed and configured on the MoleMax HD machine).

After IMAGE TRENDING is completed click **SAVE & CLOSE** the button to close the case.

7.7.2. Quick Follow Up

Another alternative to Standard Follow Up or Guided Follow Up is "Quick Follow Up" option.

To Select Quick Follow Up from the Patient Menu simply click on the arrow next to Follow-Up/Monitoring button and select Quick Follow Up as shown on the following image:
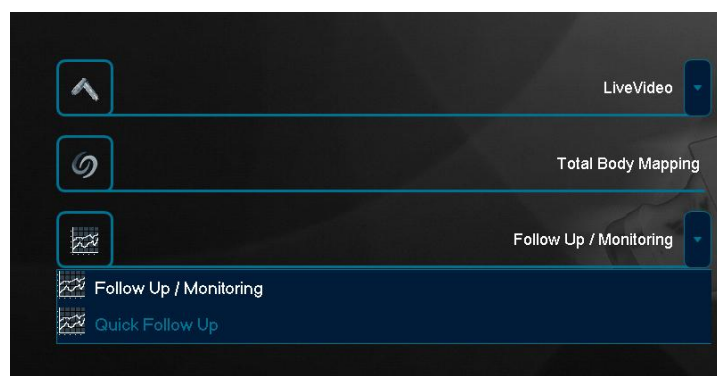
After clicking the Quick Follow Up button new screen, similar to Trending screen is displayed.

Use the column on the left side to select the ELM image to follow up and then selected the recording of this image on the right side that should be controlled. By default latest image is automatically selected.

Click Follow Up button in the bottom left corner to perform follow up of this lesion. Functionality is identical as described in Chapter 7.7.1
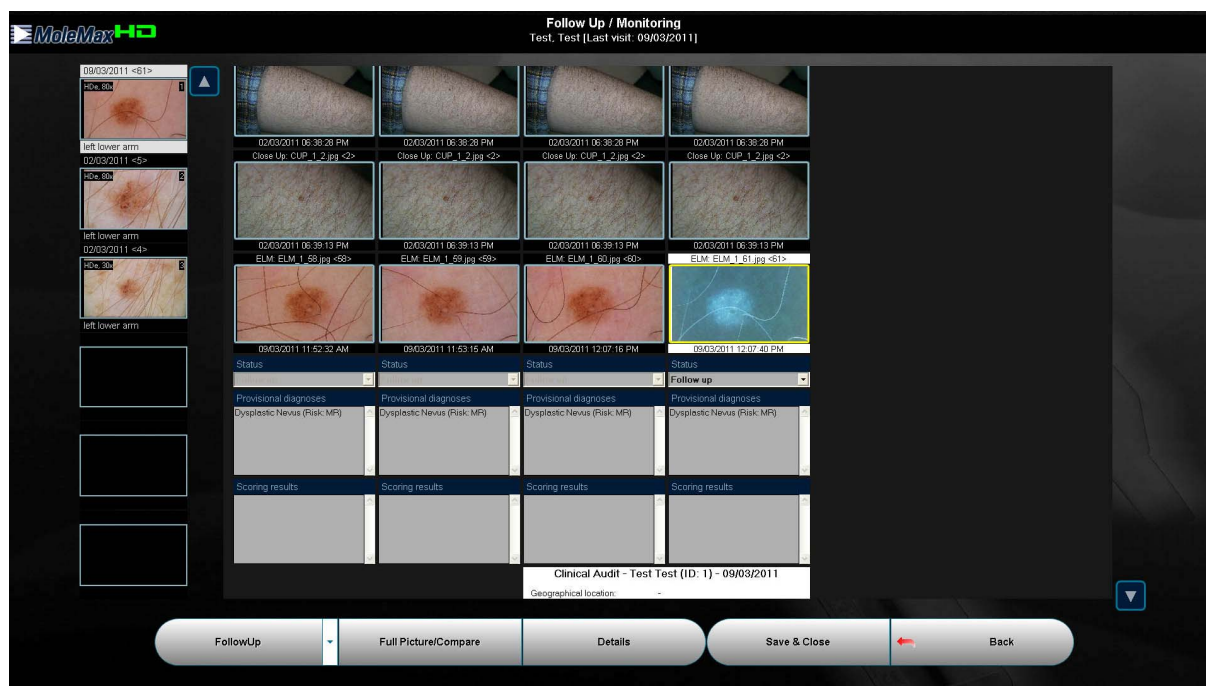
Live Video screen is activated upon clicking on Follow Up button.

> **IMPORTANT**
> - Follow up of macro images can not be done with camera in micro mode
> - Follow up of micro images can not be done with camera in macro mode

Within Live Video, there are two different ways to take a follow-up:

- Full Screen mode
- Compare mode for side-by-side comparison of a stored image with the actual live video (default setting)

> **IMPORTANT**
> - If Image Import is used old image is scaled to fit the screen and displayed next to image selected for import.
> - If ELM adapter is used for stored image, follow up can ONLY be done by using the same magnification!

Full Screen mode..
To get into the Full Screen Mode select the corresponding symbol to the right of the live video frame. To freeze the live video select **FREEZE**. Select **OK** to proceed.

Compare mode (default) ....
To get into the Compare Mode select the corresponding symbol to the right of the live video frame. On the left picture-half the stored image is shown. To freeze the live video select **FREEZE**. Select **OK** to proceed.

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REMEMBER

To move the image on the left take the cursor into the image until it changes to a big arrow symbol and press the mouse button. The image will be moved into the direction displayed by the arrow.

Step 3 (Saving the image):

After clicking **OK** button DETAILS screen is shown.

To save time in the follow up examinations the mouse pointer is positioned automatically on the next logical step.
Select either **OK** to save the image.

REMEMBER

The localization is already pre-set. Give a new diagnosis if necessary. For a more detailed description see *Giving a diagnose* in New Patient.

If the box *Excision planned* was activated at the last examination it will be automatically activated in the follow up examination. This ensures a continuous history of a lesion.

Images that have been followed-up are labeled by a dark red localization text underneath the image.

After image is saved software returns to Quick Follow Up screen and next image available for Follow Up is automatically selected. Select Follow Up button to control next image, press Back to return to Patient Menu or F10 to go back to the Main Screen

7.8. New image

New Image can also be obtained directly from the Patient Main menu. When entering Patient Main menu (right after patient selection) **Live Video** is active and shown inside top left icon on the screen.

To obtain the new image by using Live Video function (using MoleMax HD video camera) click on **LIVE VIDEO** button.
To obtain new image by using alternative method click on the **arrow** located on the right side of the icon and select between **LIVE VIDEO** and **IMAGE FILE IMPORT**, or Direct Camera Import or TWAIN import (if available and enabled within Administration Menu)
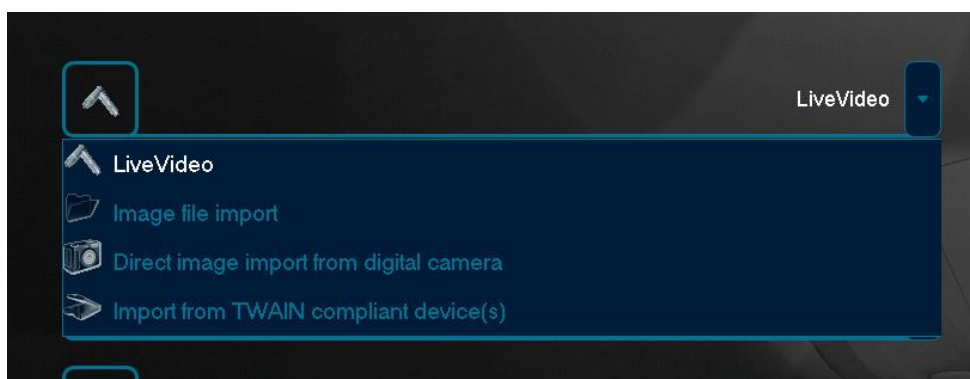
Take the new macro, close-up and/or ELM image as described in the New Patient section in the beginning of this manual.

7.9. Total Body Mapping

This feature is especially useful for clinical examinations of high-risk patients such as those with dysplastic nevi syndrome. It consists of a series of images of pre-defined body positions following a standardized capture protocol. Either 33 (standard) or 10 clinical images can be compared over time and can be stored on a disk for patients' self-examinations.
If the MoleMax HD is used for the documentation of cosmetic procedures, the default 33 images of the Body Map is usually replaced by a 10 images series that was developed merely for this purpose.

Select **Total Body Mapping** button within Patient Menu screen (second left from the top). Simply click this icon to enter Total Body Mapping feature using MoleMax HD camera (macro mode must be used).

Following screen appears:
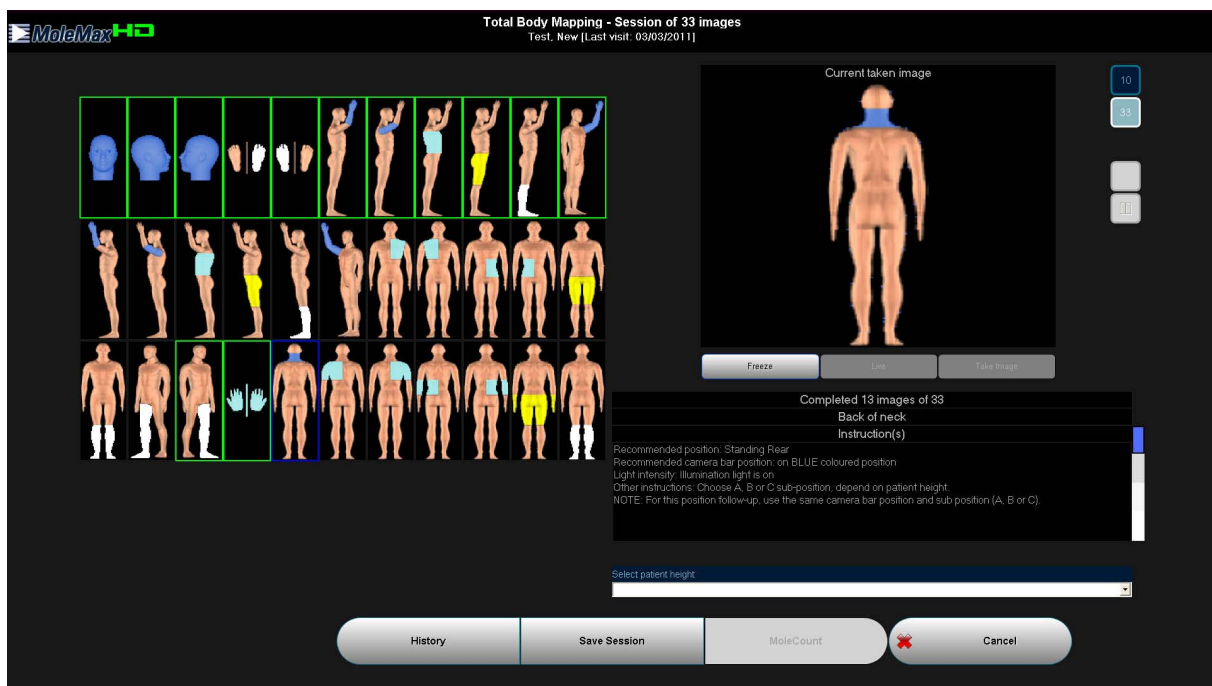
BodyMap session can now start.

First select maximum number of images for the session. Sessions of 10 and 33 are

available. Simply do this by clicking one of following icons …………………..................

If session of 33 is selected 33 dummy locations are shown within BodyMap screen as on the image above. If session of 10 images is selected BodyMap locations appear as displayed on the screen below. In both cases first image (head–front view) is automatically selected and becomes a blue frame.
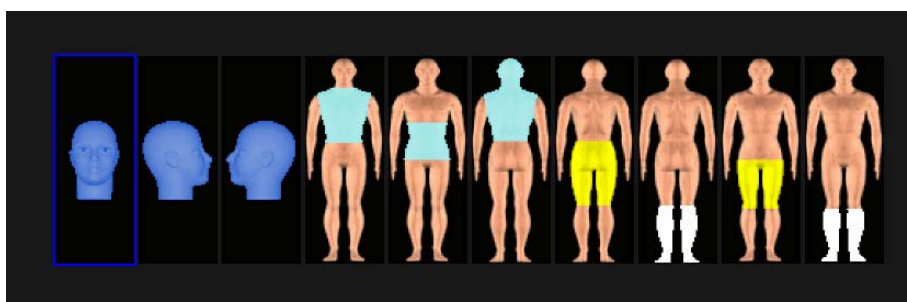
Start taking images by using MoleMax HD camera (macro mode must be used) as described in the section *New Image* at the beginning of this manual. Freeze with right mouse button (when mouse pointer is inside live video screen) and confirm with left mouse button or by clicking on **TAKE IMAGE** button. After image is taken (and stored in the database) its' dummy location becomes a green frame and next location is ready for screening (becomes a blue frame). Keep taking images until session is over and all 33 images are stored. Confirm the session with **SAVE SESSION** button. Otherwise BodyMap session will not be saved. BodyMap session can be saved at any moment and all images taken up to this moment will be stored in the database.

If full BodyMap session is not required, also **Part-Session** can be taken. Simply click with the mouse on any BodyMap location dummy and this location will become active (get a blue frame). After taking the image simply select next location as desired. After all desired locations are covered simply confirm the session by clicking **SAVE SESSION** button.

> **IMPORTANT**
> - Current location (also shown in the top left corner of the BodyMap screen) has blue frame
> - Saved location has green frame
> - Location with no image has no colored frame
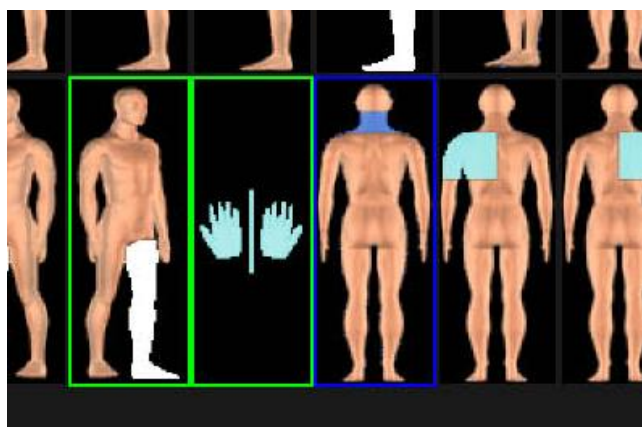
Frames:

Images taken (green frame)
Active Image (blue frame)
Image not taken (no colored frame)

If the BodyMap stand is used, recommended patient actions (sitting, standing etc) are displayed in the black frame underneath the image.
The Colors on the Dummy correspond to the color coding on the Total Body Mapping Stand (to be purchased separately)

Additional features

Inside BodyMap Live Video the following options are available:

- Displaying orientation lines
- Compare modus (only for follow-up BodyMap sessions)

Orientation Lines..
To display blue orientation lines that mark the center of the live video window, select the cross sign.

Regular Live Video ....
To fade out the orientation lines select the regular live video sign.

If there is already one BodyMap session of the selected patient MoleMax HD software recognizes this automatically and follow-up options are enabled. In this case previous images (pre follow-ups) are displayed in the top left corner of the BodyMap screen for easier orientation.

When taking a follow-up BodyMap session there are two options:

*   ☐ ☐ Live Video modus (default setting)

*   ▥ ▥ Compare modus for a side-by-side comparison of a previous BodyMap image with the actual live video

MoleCount

MoleCount is optional module for automatical recognition of new and changed moles. It can be started by clicking the **MOLE COUNT** button located in the middle of the bottom bar. MoleCount module can be used only if there are (at least) two recordings of the same image located on the same dummy location (two BodyMap sessions) It must be purchased and activated separately. MoleCount module is described in separate section of this manual.

History

With this function the images of all body mapping sessions of a specific patient can be viewed in the standard 3x3 screen.

To enter BodyMap History select **HISTORY** button located on the left side of the bottom bar.

Full BodyMap session is displayed in the common 3x3 screen. Fourth column is used to display history of the image. Select any image and click **DETAILS** to see details of this image.

REMEMBER
The Body Mapping images can also be viewed and compared in the standard

3x3 screens by clicking TBM button

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7.10. Histopathology

Within MoleMax HD Software 5 types of images are available: Micro images, Macro images, Close-Up images, Digital high resolution images and Histo images.
Histopathology module is primarily used to import histo images into the Patient database.

Histo images can be imported from any storage media connected to the MoleMax HD computer, such as local drive, CD/DVD drive, USB memory key, external storage drive or network drive.

Simply start Histopathology module by clicking **HISTOPATHOLOGY** button located in the top right corner of the Patient Main menu screen.

Following screen appears and histopathological image (if available) can be imported now:

By clicking the button IMPORT standard import screen appears.

Choose now correct path to the location where histopathological images are archived and select the correct histo image. Confirm with OK and image will be imported as HISTO image linked to the current ELM image.
Text from histopathological report can also be copied from the appropriate document (if available) in the field Histopathological Report.

Following fields are mandatory:

- Dermatological diagnosis
- Dermatological diagnosis

Comment field is may be filled if necessary.

Confirm import of histo image and return to Patient Main menu by clicking on **SAVE** button.

Full patient details including histo images can be viewed in TRENDING module as describer in Chapter TRENDING.

7.11. DermaNET

The term **DermaNET** was originally used for the teleconsulting offer from the University Clinic of Dermatology, Vienna. In the meantime, DermaNET has become a worldwide registered trademark and stands for the teleconsulting, telediscussion and telediagnostic options.

The integrated DermaNet options are divided into the two main functions *"DermaNET"* and *"DermaNET search"*. In principle, all sending activities are done in the function *"DermaNET"*. Images marked to be sent to another MoleMax user per e-mail can be found in the search menu within Patient administration screen (See chapter *Administration* in this manual to learn how to use this function).

Prior to using DermaNET correct DermaNET settings must be done in the *"DermaNET"*. Section of Administration. (See chapter *Administration* in this manual to learn how to set up DermaNET)

> **IMPORTANT**
> ⊠ The usage of the DermaNET AIS function requires a valid registration. This registration can be done by filling out and faxing the enclosed Registration form to Derma Medical Systems or simply by contacting your Dealer or calling MoleMax hotline.

(1) Sending Images to an Email Address

The MoleMax DermaNET offers you the possibility to send your images to any email address in the world.

> **IMPORTANT**
> To be able to use this option you need to have
>
> ⊠ Access to the Internet,
> ⊠ The email address of the recipient(s) in your Address Book
> ⊠ The DermaNET set up properly on your system
> ⊠ To send the images that were specified in the DETAILS screen (prior to saving) for obtaining a second opinion use the option "Administration / Patient Menu / Images to send".

Step 1:

Select **DERMANET** button in the Patient Main menu (third icon from the top on the right side). Standard 3x3 screen is displayed.

Step 2:

Select the images that should be transmitted and select **SEND E-MAIL**. Multiple images can be selected.

> **REMEMBER**
> ⊡ Only the sex and the date of birth of the patient are transmitted. To easily find the images again for discussion the Image IDs (but not Patient ID data) are also transferred.
> ⊡ To send the corresponding macro, close-up and/or ELM images check the box *Include not selected corresponding images*.

Step 3:

Select one or more recipients from the list of available recipients in the screen shown below.

Insert your question to the recipient or any type of the comment into the question text box. If necessary change the subject of the message. Your e-mail address (as preset in DermaNET settings) will be shown in Sender ID field.

Step 4:
Select **SEND** and the Communication screen as displayed below will open.

Simply click **SEND IMAGE(S)** button and image transfer procedure will start. Wait until the transfer has been finished and the message inside the screen confirms image has been sent.

Step 5:
Click **CLOSE** button to return back to previous screen. Press F10 to return back to Main menu.

(2) Sending an image for AIS support

AIS (Artificial Intelligence Support) is a service from Derma Medical Systems. With this tool you can easily diagnose your pictures. The image you have sent is mathematically scored and compared with a database of more than 1000 pictures, carefully selected from comprehensive database of over 7000 diagnosed and histological proved images. You will receive three pictures which look most similar to your image, their diagnoses and the mathematical score of your image to your e-mail address.

Step 1:
Select **DERMANET** button in the Patient Main menu (third icon from the top on the right side). Standard 3x3 screen is displayed.

Step 2:
Select the image that should be transmitted and select **SEND TO AIS** button. Only one single micro image can be selected for AIS service. As soon as macro image or more images are selected AIS button is disabled.

Step 3:
Patient information screen shown below appears:

Simply input the necessary information and click button **SEND**.
Please note that these information have to be input, but only once per patient.

Step 4:
Communication screen as described in the *Sending e-mail* part will open and image can now be transferred to Derma Medical Systems for AIS expertise. Press **CLOSE** / **F10** to return to main menu. You will get your request and the scoring back as an E-mail.
If your request can not be sent, and you are registered for AIS service please check your **DermaNET Settings** located within ADMINISTRATION menu.

IMPORTANT
- Multiple images can be send to any recipient by using SEND E-MAIL option
- You must register your email address with DERMA MEDICAL SYSTEMS   in order to use AIS. This service is free of charge and available for all MoleMax users
- Only single image can be sent when using AIS
- Only micro image can be sent for AIS
- As soon as more than one image is selected in 3x3 screen AIS button goes off

7.12. Reports

This function is used to print a detailed report with images enclosed. The information that is given can be chosen individually for each report.

> **IMPORTANT**
>   PRINT function is also available on diverse locations within MoleMax HD software, whenever PRINT button is present.

There are several types of reports available. Using Reports Function either Patient Record or two type of Dummy Sheets may be printed or saved as PDF.

To select reporting option click on the **arrow** located on the right side of the REPORTING icon and select the reporting method, as shown on the image below:
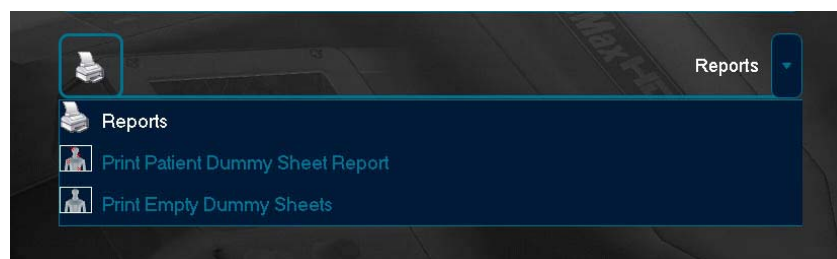
- PRINT EMPTY DUMMY SHEETS prints empty dummy sheet on the default printer. This sheet may be used to mark and localize remote images taken (for an example by using digital still camera) away from the site with the MoleMax HD device. This way all the necessary data needed to import these images into MoleMax HD database may be found on one sheet.

- PRINT PATIENT DUMMY SHEET REPORT prints complete patient record with localizations of all images to one paper sheet. This may be used as a summary of a patient record, as well as template for follow up at a remote site.

REPORTS is function used to print a detailed report with images enclosed, or to create a PDF with appropriate information. Prior to printing the selection of images to print is required, as well as additional choice of printed data.

Step 1:
Select the icon **REPORTS** from the Patient main menu (fourth icon from the top on the right side)

Step 2:
Select the images that should be printed and select **PRINT**. The following screen with PRINT PREVIEW is displayed:
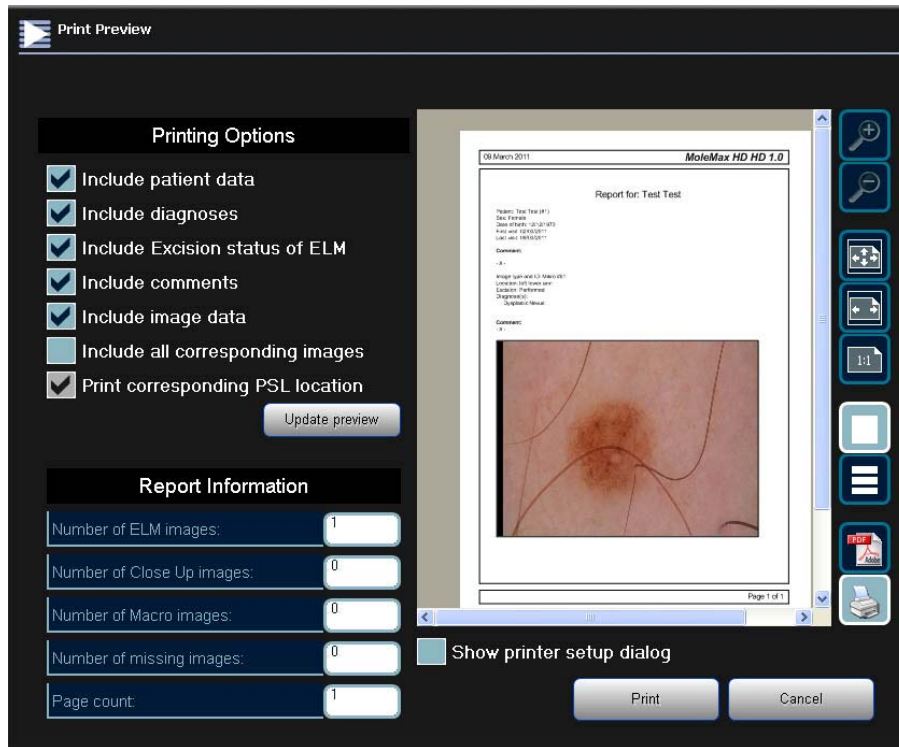
Use icons on the right side of the Print Preview screen to zoom in and out, to center or move print preview within the preview window, or to see it pixel by pixel (in real size).

Step 4:

Select Printing Options that include displaying or removing Patient Data, Diagnoses, Excision Status, Comments given, Image data, as well as adding corresponding Macro and Close-Up images.

Step 4:

Printer icon on the right side is selected. Document can now be printed on the default printer. If other printer than default should be used click on the check box *"Show printer setup dialog"* and standard windows print dialog will open. Chose any installed printer and confirm with **PRINT** to print the page.

If there is no printer available or installed, Adobe PDF document can be created

> **IMPORTANT**
> - PRINTING of the patient record may be performed with three images per page, or by printing one single image per page.
> - Select corresponding button on the right side of the printing dialog to determine the number of images printed on one page.
> - Printouts with two Follow-Up images per page are available from Follow-Up screen.

Step 5:

Press **F10** to exit to main menu.

7.13. Scoring

To enter the Scoring screen use **SCORING** button in the Patient Main menu (fourth icon from the top on the left side). Click the button to enter Scoring screen where familiar 3x3 screen is displayed.

There are three different SCORING methods available within MoleMax HD software:

- AIS as described above in the section AIS

- Manual using common method and expertise of the user.

- Automatical using diverse advance algorithms.

Remember

- Scoring methods are also available in DETAILS screen prior to saving the image

- Scoring methods are implemented in the MoleMax HD software to assist the doctor only. No scoring method can better the doctors' experience!

To read about AIS see Chapter "*Send image for AIS support"* described in "*DermaNET"* module.

7.13.1 Manual Scoring (Expertizer ABCD and 7-Point Rules)

The Expertizer software was developed in co-operation with the Department of Dermatology at the Medical School Vienna. It is designed to be an interactive learning add-on module to the standard MoleMax HD Software.
It draws presently on a pool of more than 700 selected reference images that were recorded with the MoleMax HD systems at the Vienna Medical School, Department of Dermatology. Those images chosen among 25.000 ELM images should help those users who are not so familiar with the technique of ELM to train them in that method. The reference images are grouped according to their diagnoses and to the ELM criteria they exhibit.
The software package contains state-of-the-art image analyses functions and aids in the classification of lesions according to the clinically approved ABCD-rule and the extended ABCD-E (where E stands for the evolutionary change of the nevus) method. A newer scoring method, the Seven-Point Checklist (also known as Argenziano Score), is also implemented in the Expertizer to give a diagnostic support. But, it cannot be emphasized enough that the MoleMax-Expertizer is not a provider of simple black-box diagnosis. It is a sophisticated aid to the doctor to improve his diagnostic accuracy - this is the primary purpose and philosophy behind the creation of the MoleMax-Expertizer.

To strengthen this idea, the Expertizer offers a self-assessment module, where the doctor can test his diagnostic accuracy. By receiving the proper feedback, he can further improve his ability to diagnose pigmented skin lesions. Also full detailed list of different criteria and diagnose examples are available.

Expertizer software is divided into two parts. While Expertizer scoring methods (**ABCD** and **7-Point rule**) are integrated into MoleMax SCORING menu, **Self Assessment**, **Diagnose examples** and **ELM Criteria examples** are available in SERVICES Menu and are described in "*Services"* Chapter of this manual.

To score the image by using Expertizer **ABCD rule** or
7 Point Check List first select the image in the 3x3 screen and click appropriate button in the scoring menu (**ABCD and 7 Point Check List**).
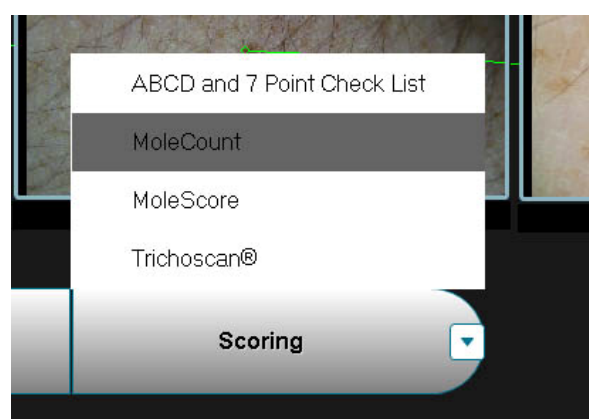
Prior to scoring image must run through segmentation process to obtain mathematical and statistical interpretation of the image.

Segmentation screen will appear as shown on the image below:
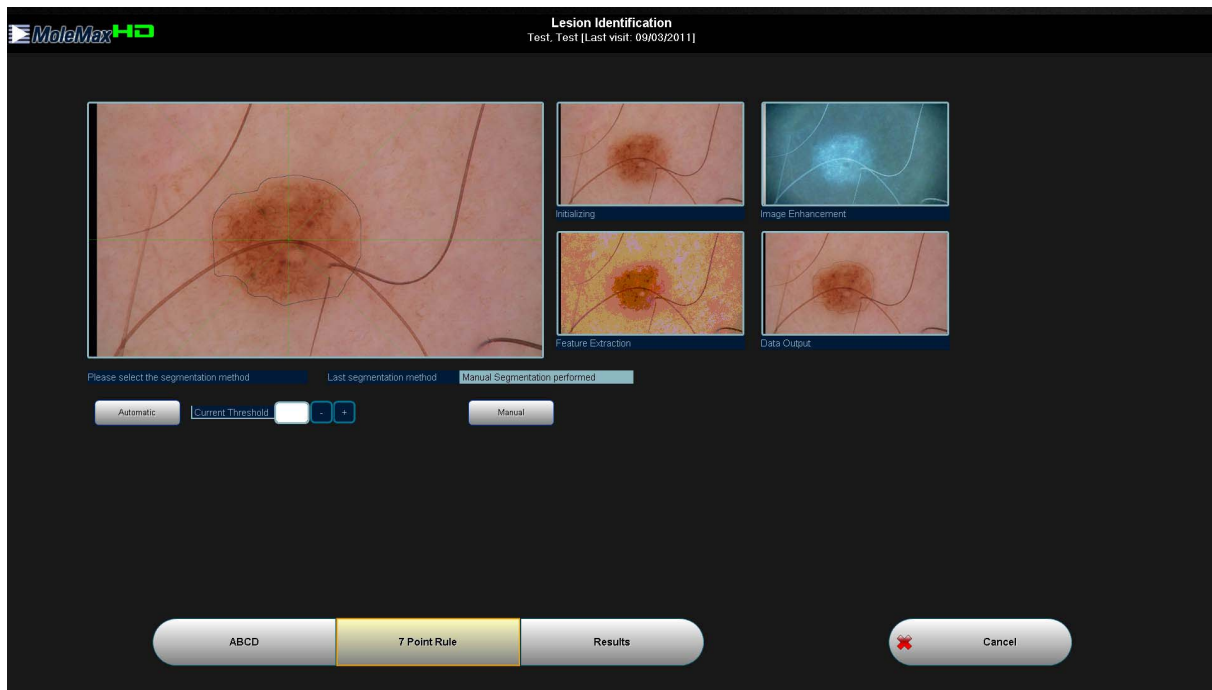
There are two methods of segmenting a lesion from the surrounding skin: Automatic or Manual.

Automatic

1. To start the automatic segmentation Select **AUTOMATIC**. The automatic segmentation will be executed in four steps: Initializing, Image Enhancement, Feature Extraction and Data Output. It takes approximately 20 seconds for the software to segment the lesion.

2. In case the size of the lesion has not been correctly recognized, the current threshold can be adjusted. Select **+** to increase the threshold if the lesion is larger than the segmentation proposal. Select **–** to decrease the threshold in case the software segmented a larger area than the actual size of the lesion. Keep the button pressed and the threshold value will increase/decrease until the button is released. The threshold has to be adjusted depending on how much the proposed area differs from the actual area of the lesion. The threshold can also be typed in manually.

3. Select **AUTOMATIC** again to get the new segmentation area by the software.

4. Repeat *Steps 2* and *3* until the correct area is segmented.

Manual

However, the automatic identification will not always provide the best results, like in some cases with hair strings in the lesion image.
In those cases the segmentation needs to be done manually.

1. Select **MANUAL** and the image will be zoomed to the original size.

2. Circle the lesion as good as possible. To do so click with the left mouse button around the lesion. At least eight connection points have to be specified.

3. Press the right mouse button to close the circle. If not pointed correctly, Select **RESET** to redo.

4. Select **OK** to start the segmentation process. The program returns to the lesion identification window.

For your information the last segmentation method and the value of the current threshold are displayed on the screen.

After having segmented the lesion from the surrounding skin select **RESULTS** to get some mathematical parameters calculated by the software.

Select **SAVE** to save the segmentation results in the file. This fine is called segres.txt and is located in the folder where MoleMax HD software is installed.

Select **PRINT** to print-out the results and/or **CANCEL** to return to the Segmentation screen.

Following Results are calculated within this module:

Form Factors

- Area (area of the lesion, given in mm^2)
- Perimeter (the length of the border line of the identified lesion)
- Min. Diameter (minimum diameter of the lesion)
- Max. Diameter (maximum diameter of the lesion)
- Elongation (ratio of the maximum and minimum lesion diameter – perfectly smooth lesions will have an elongation of 1)
- Roughness (measurement of the irregularity of the border of the lesion – perfectly smooth lesions will have a roughness of 1)
- Center of Gravity (x/y) (mathematical lesion center given in pixels counted from 0/0 pixel point in the top left corner)
- DCircle (the diameter of a circle with an equal area)

Form Factor (measurement for the circularity of an object – it is calculated by the following equation: FormFactor = 4 μ (Area / Perimeter^2)

Gray Value Factors

- Min./Max. (minimum describes the value of the darkest pixel in the lesion and maximum describes the value of the brightest pixel in the lesion measured on the gray value scale 0 to 255)
- Variance shows the variability of visual information within the lesion.
- Standard Deviation shows the standard deviation of the colors within the lesion.

Histogram
The Histogram shows how many pixels in the lesion have certain gray values (y-axis: number of pixels 0-307200max, x-axis: gray value scale 0-255).

After segmentation is performed ABCD rule o 7 Pont Check List can be applied.

7.13.1.1. ABCD-Score

The ABCD rule of dermatoscopy is a worldwide accepted classification method based on a semi-quantitative analysis of four criteria: A stands for the Asymmetry of the lesion, B for the Border of the lesion, C for the Color(s) in the lesion and D for Differential Structural Component(s) found in the lesion.

Step 1:
Select the symbol **ABCD** in the Segmentation screen. First step / screen of ABCD method is displayed.

During each step of the evaluation process reference images are displayed on the right side of the screen. Those images are already evaluated on the base of the ABCD criteria and are sorted according to their single ABCD values. In the image description box the specific ABCD criteria seen in the lesion are described. The histological proven diagnosis can be found above the image. Select the + or - buttons under the image description to see the next or the previous image.
In each step of the evaluation the software tries to find similar reference images based on the criteria that you selected.
At any time during the ABCD-Method it is possible to select **BACK** to go back one step in the evaluation process.

Step 2:

First, evaluate the asymmetrical characteristics of the lesion:
Choose one out of three options:

- Lack of asymmetry in both axes if the lesion is fully symmetrical,
- Asymmetry in one axis if the lesion exhibits an asymmetry in one axis,
- Asymmetry in both axes if the lesion is fully asymmetrical.

Select **OK**.

Step 3:

Second, evaluate the number of segments with an abrupt cutoff of pigment pattern:
Choose the number of segments (1 to 8) in which the lesion has a clearly defined and sharp border to the surrounding skin.
Select **OK**.

Step 4:

Third, evaluate the different colors in the lesion:
Select the specific colors of the lesion. There are six options offered. Note that more than one selection can be made.
Select **OK**.

Step 5:

Last, evaluate the differential structural components in the lesion:
Select differential structural components in the lesion. There are five options offered. Note that more than one selection can be made.
Select **OK**.

Step 6:

The **ABCD SCORE** is displayed by the bar chart at the right side of the screen. The corresponding ABCD total score and the description of the identified ABCD criteria are shown below the lesion.
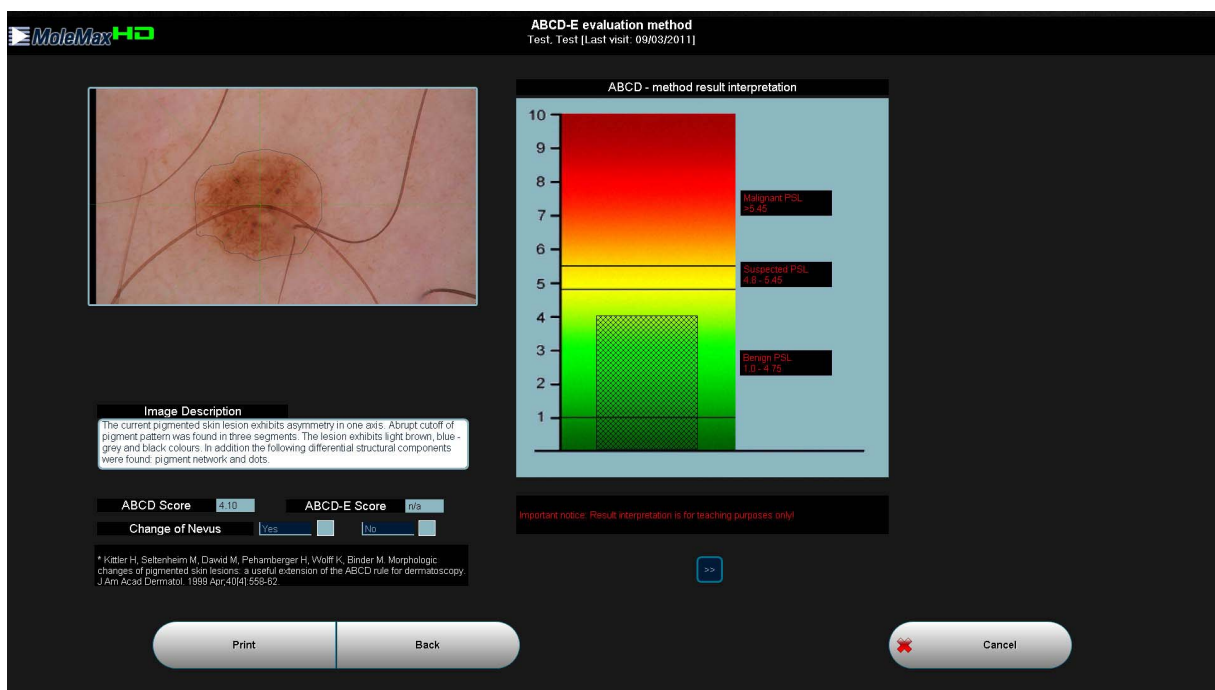
Next to the ABCD total score, the extended ABCD-E score is displayed. The extension to the traditional ABCD method, E, stands for the evolutionary change of the evaluated lesion. To calculate the extended ABCD –E score answer the question whether the particular lesion has changed or not.

Step 7:
Select **CANCEL** to return to the Segmentation screen.

When returning to the MoleMax main menu the program asks whether or not to save the calculated ABCD-score. Select **YES** to store the ABCD-score in the database. It will be displayed in the comments box when opening the corresponding image and it also can be viewed in scoring field within TRENDING function.

7.13.1.2. 7-Point Checklist

The Seven-Point Checklist is the newest approach to the analysis of criteria in pigmented skin lesions. It is based on a blind study of 342 malignant lesions (117 melanomas and 342 malignant lesions). The doctor has to identify major and minor criteria. In criteria with several variables, the variables that had a significant influence in the diagnosis of melanoma were determined. Significant major criteria receive two points each and significant minor criteria receive one point. A score of three or greater has a 95 percent sensitivity of being a melanoma.

Step 1:
Select the symbol **7-Point Check List** in the Segmentation screen. First step / screen of 7 Point Check List is displayed.

During each step of the evaluation process reference images are displayed on the right side of the screen. Those images are already evaluated on the base of the 7 Point criteria and are mainly used to as example for the answer checked on the left side in one of Check Boxes. The histological proven diagnosis can be found above the image. Select the + or - buttons under the image description to see the next or the previous image.
In each step of the evaluation the software tries to find similar reference images based on the criteria that you selected. At any time during the 7 Point Check List it is possible to select **BACK** to go back one step in the evaluation process.

Step 2:
Identify the major criterion atypical pigment network.
Only a prominent & irregular network in a lesion receives two points; a network that is absent, regular, irregular or prominent, is, according to the study of Argenziano, not significant in the diagnosis of melanoma.
Select **OK**.

Step 3:
Identify the major criterion Gray-blue areas (Blue-whitish veil).
Gray-blue areas are defined as irregular, confluent, gray-blue to whitish-blue zones and are not associated with red-blue lacunes or maple leaf pigmentation.
Select **OK**.

Step 4:
Identify the major criterion atypical vascular pattern.
Atypical vascular patterns are defined as linear, dotted or globular red structures and are irregularly distributed outside of areas of regression. These patterns are associated with other malignant structures.
Select **OK**.

Step 5:
Identify the minor criterion Streaks (pseudopods/radial streaming).
Radial streaming or streaks are defined as radially and asymmetrically arranged linear bulbous extensions at the edge of the lesion. Only irregular Streaks in a lesion receive one point; streaks that are regular, are, according to the study of Argenziano, not significant in the diagnosis of melanoma.
Select **OK**.

Step 6:

Identify the minor criterion Irregular pigmentation/blotches.
Blotches appear as brown, gray or black areas of diffuse pigmentation with irregular shape or distribution and abrupt ending.
Select OK.

Step 7:

Identify the minor criterion Dots and globules.
Irregular dots and globules appear as black, brown, or blue round structures irregularly distributed within the lesion. Only irregular Dots and globules in a lesion receive one point; Dots and globules that are regular, are, according to the study of Argenziano, not significant in the diagnosis of melanoma.
Select OK.

Step 8:

Identify the minor criterion Regression pattern.
A regression pattern appears as scar like depigmentation or sometimes as speckled blue-gray dots within a hypopigmented area (i.e. peppering).
Select OK.

Step 9:

The Seven-Point Checklist result is displayed by the bar chart at the right side of the screen. The corresponding Seven-Point total score and the description of the identified criteria are shown below the lesion.
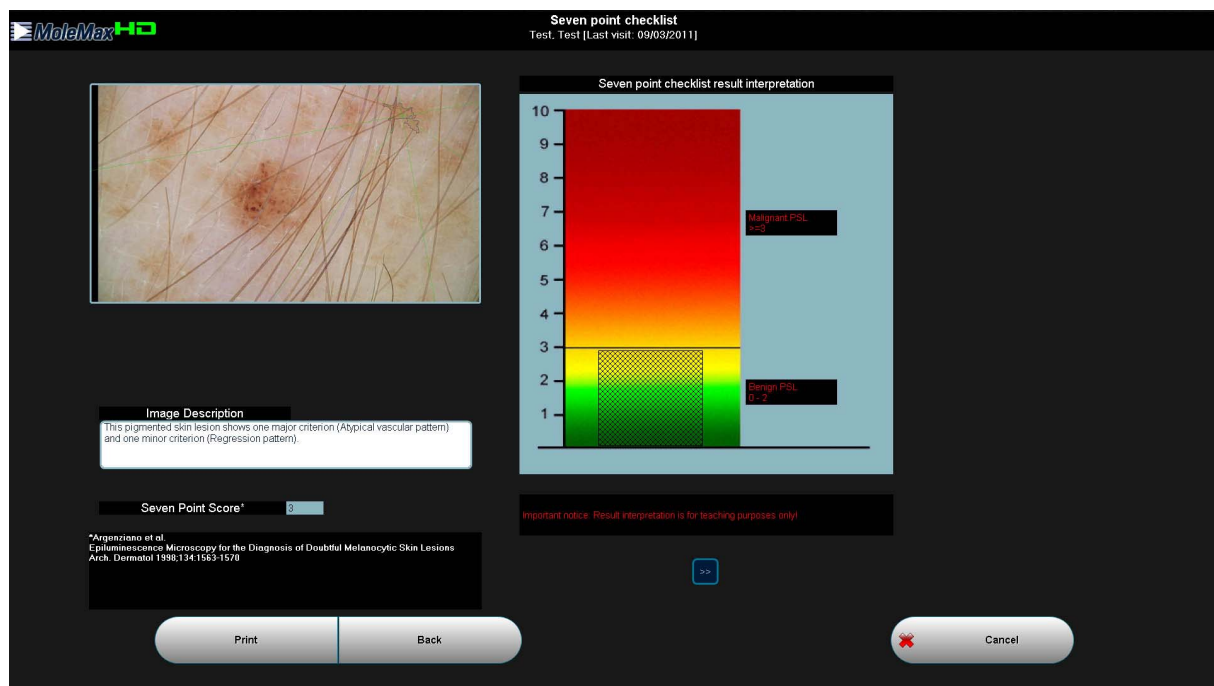
Step 10:
Select **CANCEL** to return to the Segmentation screen.

When returning to the MoleMax main menu the program asks whether or not to save the calculated ABCD-score. Select **YES** to store the ABCD-score in the database. It will be displayed in the comments box when opening the corresponding image and it also can be viewed in scoring field within TRENDING function.

7.13.2. Automatical Scoring

There are three Auto-Score options installed with MoleMax HD software.
All three options are OPTIONAL that should be purchased and activated separately prior to use.

To Auto-Score select image(s) to score and select appropriate scoring method by clicking on one of following buttons displayed on the bottom of the Scoring screen (to be chosen in the scoring button):
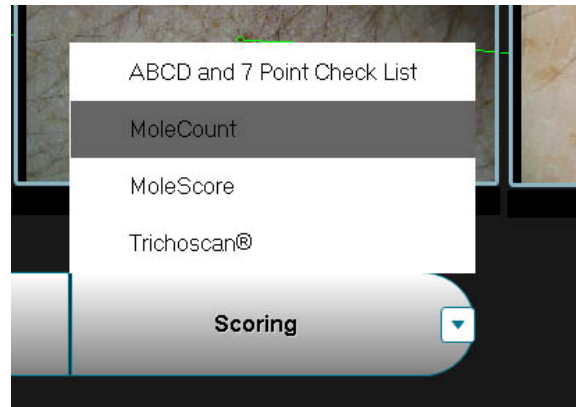
TrichoScan is used to score tricho images, **MoleScore** to score moles (micro images) and **MoleMapping** to score and examine changed and new moles on macro images

7.13.2.1 Trichoscan

A unique option for hair analysis is available with an external software called TrichoScan. It is an addition to MoleMax HD software and must be purchased separately. Start this module by clicking **TRICHOSCAN** button located in the scoring bar.

The TrichoScan software allows you to automatically measure biological parameters of hair growth in situating the images taken with the MoleMax DELM camera. For the automatic analysis with TrichoScan a certain hair area needs to be shaved (ca. 1.8 cm²), dyed and digitally documented at a 30x magnification.

The patient should be recalled in **three days** where one image with 30x magnification has to be taken and the TrichoScan Analysis has to be performed.

In contrast to the traditional Trichogram, TrichoScan is painless, reproducible and allows a digital documentation. It enables to compare different capacities of hair growth promoting substances (anagen/telogen) and can be used for monitoring the treatment through MoleMax.

The TrichoScan program package is available on all MoleMax systems as add-on module or for later installation.

Trichoscan Software provides unique hair count system and hair growth detection with mathematical evaluation.

After the button **TRICHOSCAN** is selected Tricho-Analysis is being performed automatically.
In order to see the Trichogramm, click on button "*Trichogramm*"

Typical TrichoScan screen is shown on the following image.
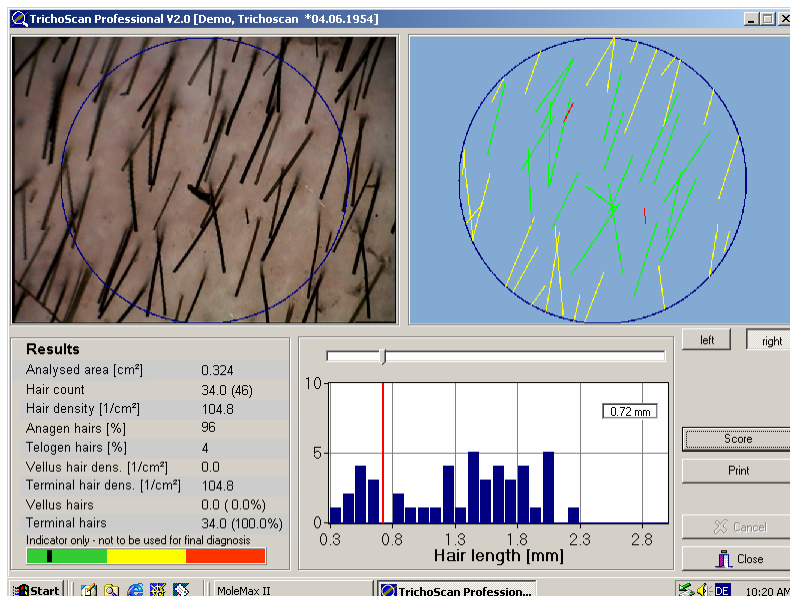
In order to see the score, click the button **Score**. The Score is presented as a traffic light bar. If the marker is in the green zone hair growth is in normal zone, if the score bar is in the red zone it needs medical treatment.

The output values of TrichoScan module are:

- Analyzed area
- Corrected number of hairs (In the brackets uncorrected number of hairs)
- Hair density (number of hairs per area)
- Anagen hairs (percentage of normally growing hairs)
- Telogen hairs (percentage of non-growing hairs)
- Vellus hairs density
- Terminal hairs density
- Number of Vellus hairs (percentage in brackets)
- Number of Terminal hairs (percentage in brackets)
- Diagram shows frequency of distribution of the hair length. Red marker signs the maximum length defined for Telogen hairs.
- Indicator bar (green – normal Trichogram ; yellow – mild Telogen effluvium ; red- distinctive Telogen effluvium)

With every TrichoScan Software delivered one set for hair coloration is delivered as an optimum result is achieved when hair is colored.

After exiting the module calculated score can be saved in the database, and viewed at any time in the comment bar in DETAILS screen or in SCORE field within TRENDING screen.

Remember

- To read more about TrichoScan please read separated manual installed with every MoleMax software

- TrichoScan is OPTIONAL external module and as such must be purchased AND activated separately

- Activation is completed over internet and activation code can be obtained directly from the module (internet connection required)

- Additional trimmer and TrichoScan set are delivered with every TrichoScan module.

- Additional Demo CD is delivered with every TrichoScan module.

7.13.2.2 Mole Mapping (Mole Expert Macro)

The change of nevi is one of the most import factors for the early detection of melanoma in high risk patients. It is often difficult to identify changed or new moles in the follow-up of these patients. Changes of moles in the back are difficult to be discovered by the patients themselves. MoleExpert macro is the one of the worldwide most advanced mole mapping and screening systems for the detection of changes in nevi.

The software is best used with new digital cameras and a image resolution of 4 megapixel or higher. It works also with a lower image resolution. Only macro images can be used within this module

To enter Mole Mapping module simply select two follow up images of the same area and start the **Mole Mapping** module. Two similar follow-up images of a relevant body site for one patient will be compared. MoleExpert Macro automatically detects nevi in the first and in the follow-up image and computes the mole mapping. Additionally the software extracts features relevant to the size, shape, and brightness of each lesion, and these features are compared for all mapped nevi. Extracted moles are shown in full resolution giving a detailed image of the nevus.

New Moles are surrounded by yellow circles and changed moles are surrounded by red circles.
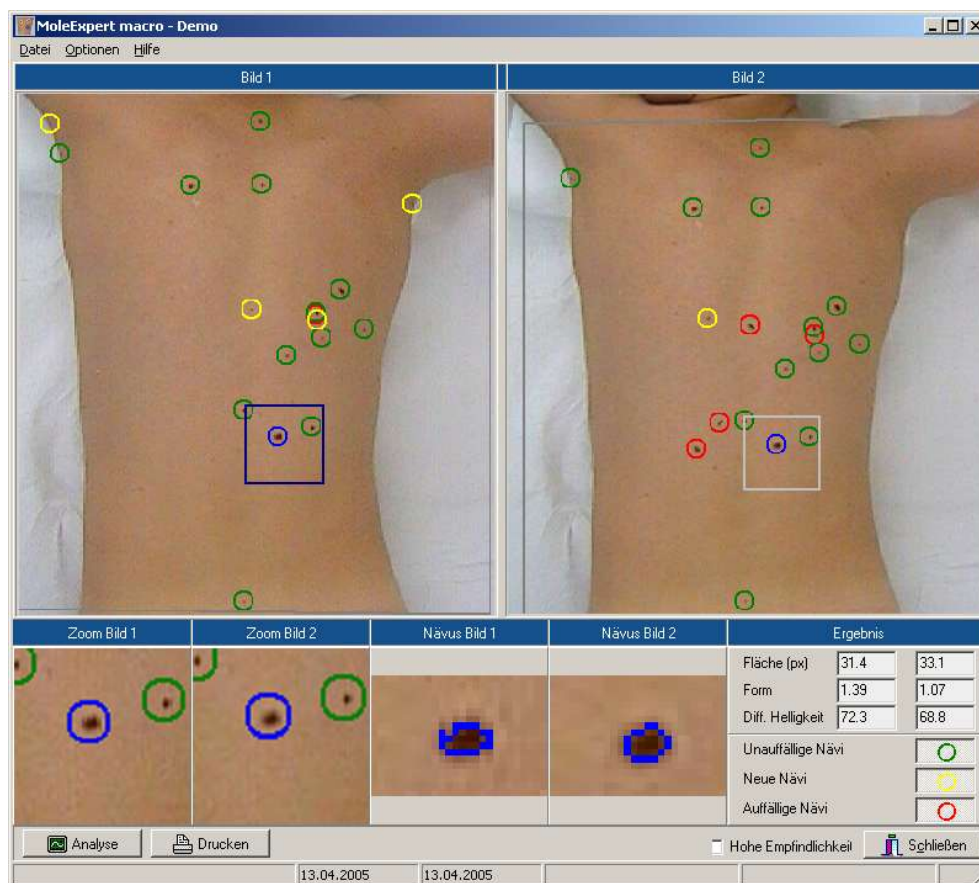
Remember

- To read more about Mole Mapping (Mole Expert Macro) please read separated manual installed with every MoleMax software

- Mole Mapping (Mole Expert Macro) Score is OPTIONAL external module and as such must be purchased AND activated separately

- Activation is completed over internet

7.13.2.3 Mole Score (Mole Expert Micro)

Auto-Scoring the nevi is one of more and more required features in dermoscopy. **Mole Score** is unique modul for auto-score of any type of the mole. Up to two similar follow-up images of the same mole can be scored and compared within this module. Simply select the image to score and start (Optional) MoleScore module. Auto score is performed and displayed on the screen in *Ammer score bar*.

Please note that MoleScore applies only to images with 30x magnification.

After exiting the module calculated score can be saved in the database, and viewed at any time in the comment bar in DETAILS screen or in SCORE field within TRENDING screen.
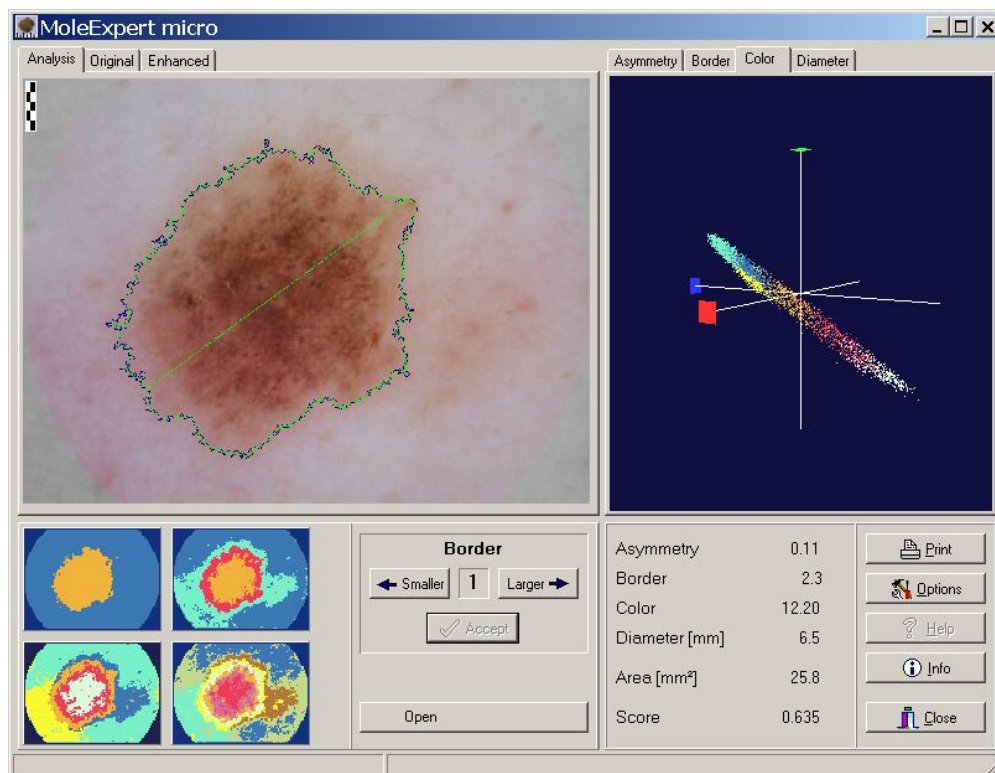
IMPORTANT

- In order to calculate score correctly mathematical algorithms must be readjusted and large database of diagnosed and analyzed images is necessary. Because of this reason, only micro images taken with MoleMax Live Video function are available for Mole Score analyze
- Mole Score can analyze only images taken with standard 30x magnification.
- Digital video images can not be analyzed in Mole Score module.

Remember

- To read more about Mole Score (MoleExpert Micro) please read separated manual installed with every MoleMax software

- Mole Score (Mole Expert Micro) is OPTIONAL external module and as such must be purchased AND activated separately

- Activation is completed over internet and activation code can be obtained directly from the module (internet connection is required)

7.14. CosMax

The CosMax software is a state-of-the-art visualization, simulation, and information tool developed especially for the cosmetic and aesthetic dermatology.

Visualization
The CosMax software is designed to help you communicate with your clients by visualizing achievable treatment results. This useful technique allows you and your patients to better discuss the specific area that they want to improve. Patients can therefore get a very realistic idea of what might be accomplished with certain treatments.

Simulation
The CosMax software, using high-tech simulation techniques, enables your patients to preview their desired changes before treatment begins. Combinations of changes can be demonstrated in a way that was impossible before this technology was available.

Information
The CosMax software allows you to consult with your patients about cosmetic dermatology while showing patients how the results might look. While patients must realize that the result might differ from their simulated computer image, they often enjoy seeing the expected results of their treatment for themselves.
Using the MoleMax Software is it made possible to document and archive pre and post treatment images.

Simulations:

Step 1:

Select the symbol **COSMAX** in the Patient Main menu (second from the top on the right side)

Step 2:

Familiar Macro + Close Up Selection screen is displayed. Select image for simulation. Click the **SIMULATIONS** button to enter Simulation Selection screen (as displayed below)
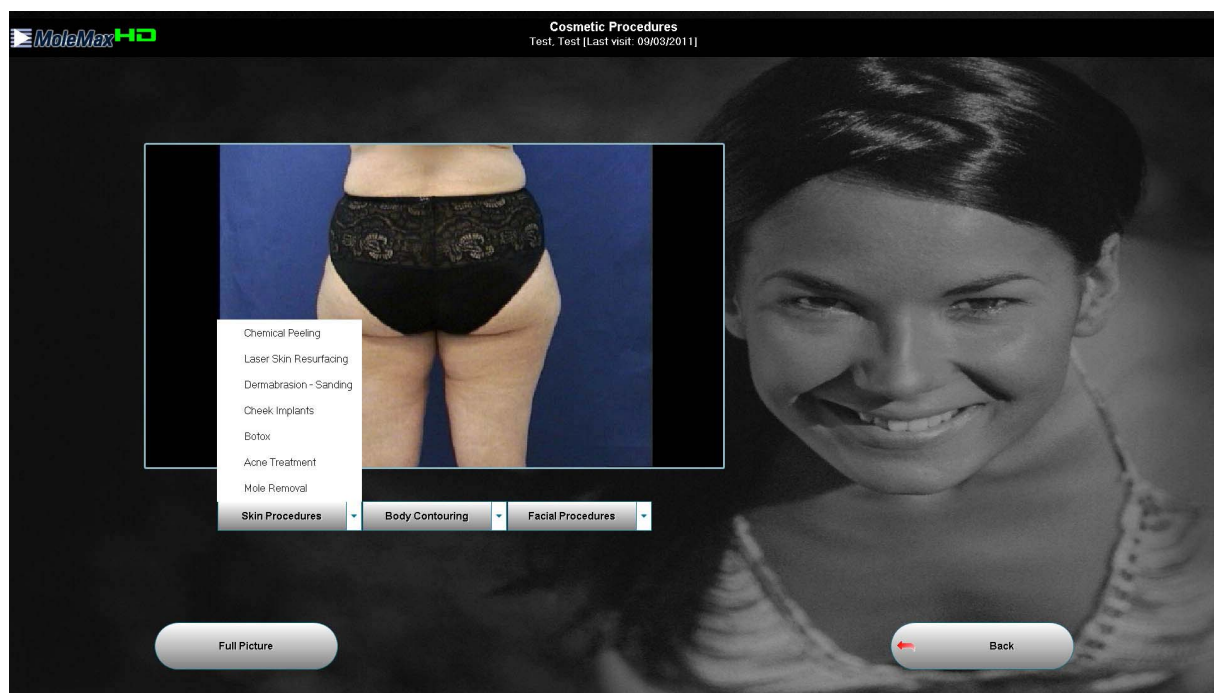
REMEMBER

> To see an image in the original size Select **FULLPICTURE**. As an additional feature the brightness and contrast can be changed in that mode. (for details see *"History"* in the MoleMax User Manual)

Step 3:

Select Simulation you want to perform.

7 **Skin Procedures**, 2 **Body Contouring simulations** and **4 Facial Procedure simulations** are available for selection.

Simulation of Skin Procedures

The following skin procedures can be simulated:

- Chemical Peeling
- Laser Skin Resurfacing
- Dermabrasion - Sanding
- Cheek Implants
- Botox Injection
- Acne Treatment
- Mole Removal

To simulate the result of a specific skin treatment Select arrow on the button **Skin Procedures** and Select the particular treatment from the list.

Simulation of Body Contouring Procedures

The following body contouring procedures can be simulated:

- Liposuction – Fat Removal
- Abdominoplasty – Tummy Tuck

To simulate the result of a specific body contouring treatment Select arrow on the button **Body Contouring** and Select the particular treatment from the list.

Simulation of Facial Procedures

The following facial procedures can be simulated:

- Lip Augmentation

- Epilation

- Rhinoplasty - Front View

- Rhinoplasty - Side View

To simulate the result of a specific facial treatment Select arrow on the button **Facial Procedures** and Select the particular treatment on the right.

Skin Procedures - Chemical Peeling

The intention of the simulation is to visualize the probable final result of a chemical peeling treatment. It does not simulate intermediate stages of the treatment process.

Mark the area that will be treated. To do so press the left mouse button and keep it pressed while drawing a border around the specific area. If the left mouse button is released the outline will be closed automatically. Press the right mouse button to start the calculation of the softening.

If the simulated result is not impressive enough simply redo the simulation by pressing the right mouse button again.

If the simulated result is not satisfying, there is the possibility of changing the pre-defined parameter settings on the right and redoing the simulation.

The three parameters have the following influence on the simulation:

- Blur Factor: determines the level of smoothening and ranges from 1 (strong smoothening) to 20 (very light smoothening)
- Dilate Factor: determines the transition from the simulated area to the surrounding area and ranges from 1 (smooth edge) to 10 (sharp edge)
- Effect Opacity: determines the level of the simulation effect and ranges from 1 (strong simulation effect) to 100 (very light simulation effect)

To change the settings, select the appropriate bar to the right of the image. It will be highlighted by a green color. Use the right and left keys ($\rightarrow$ $\leftarrow$) to increase or decrease the particular setting.
To demonstrate the changes in the simulated image use the icons **S** and **O** to switch between the **S**imulated and the **O**riginal image.

To have the simulated image ready for a different treatment simulation Select the icon **M+**. Go to the treatment method that should follow the chemical peeling and Select the icon **RM** to start the simulation on the previously simulated image.

To save the simulation Select **OK**. To leave the chemical peeling simulation without saving the results, Select **CANCEL**.

Menu buttons

	Select area for simulation
	Increase selected area
	Decrease selected area
	Start simulation
	Go back one step in the simulation
	Show / Hide the selection-border
	Remove all saved chemical peeling simulations of this image
	Show Simulated / Original image
	Place / Get the image on/from the Clipboard

Skin Procedures - Laser Skin Resurfacing

The intention of the simulation is to visualize the probable final result of a laser skin resurfacing. It does not simulate intermediate stages of the treatment process.
Mark the area that will be treated. To do so press the left mouse button and keep it pressed while drawing a border around the specific area. If the left mouse button is released the outline will be closed automatically. Press the right mouse button to start the calculation of the softening.
If the simulated result is not impressive enough simply redo the simulation by pressing the right mouse button again.
If the simulated result is not satisfying, there is the possibility of changing the pre-defined parameter settings on the right and redoing the simulation. The three parameters have the following influence on the simulation:

- Blur Factor: determines the level of smoothening and ranges from 1 (strong smoothening) to 20 (very light smoothening)
- Dilate Factor: determines the transition from the simulated area to the surrounding area and ranges from 1 (smooth edge) to 10 (sharp edge)
- Effect Opacity: determines the level of the simulation effect and ranges from 1 (strong simulation effect) to 100 (very light simulation effect)

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To change the settings, select the appropriate bar to the right of the image. It will be highlighted by a green color. Use the right and left keys (→ ←) to increase or decrease the particular setting.

To demonstrate the changes in the simulated image use the icons **S** and **O** to switch between the **S**imulated and the **O**riginal image.

To have the simulated image ready for a different treatment simulation, select the icon **M+**. Go to the treatment method that should follow the laser skin resurfacing and Select the icon **RM** to start the simulation on the previously simulated image.

To save the simulation Select **OK**. To leave the laser skin resurfacing simulation without saving the results, Select **CANCEL**.

Menu buttons

Select area for simulation

Increase selected area

Decrease selected area

Start simulation

Go back one step in the simulation

Show / Hide the selection-border

Remove all saved laser skin resurfacing simulations of this image

Show Simulated / Original image

Place / Get the image on/from the Clipboard

Skin Procedures - Dermabrasion (Sanding)

The intention of the simulation is to visualize the probable final result of a dermabrasion treatment. It does not simulate intermediate stages of the treatment process.
Mark the area that will be treated. To do so press the left mouse button and keep it pressed while drawing a border around the specific area. If the left mouse button is released the outline will be closed automatically. Press the right mouse button to start the calculation of the softening.
If the simulated result is not impressive enough simply redo the simulation by pressing the right mouse button again.
If the simulated result is not satisfying, there is the possibility of changing the pre-defined parameter settings on the right and redoing the simulation. The three parameters have the following influence on the simulation:

- Blur Factor: determines the level of smoothening and ranges from 1 (strong smoothening) to 20 (very light smoothening)
- Dilate Factor: determines the transition from the simulated area to the surrounding area and ranges from 1 (smooth edge) to 10 (sharp edge)
- Effect Opacity: determines the level of the simulation effect and ranges from 1 (strong simulation effect) to 100 (very light simulation effect)

To change the settings, select the appropriate bar to the right of the image. It will be highlighted by a green color. Use the right and left keys (→ ←) to increase or decrease the particular setting.
To demonstrate the changes in the simulated image use the icons **S** and **O** to switch between the **S**imulated and the **O**riginal image.

To have the simulated image ready for a different treatment simulation Select the icon **M+**. Go to the treatment method that should follow the dermabrasion and Select the icon **RM** to start the simulation on the previously simulated image.

To save the simulation Select **OK**. To leave the dermabrasion simulation without saving the results, Select **CANCEL**.

Menu buttons

Icon		Description
		Select area for simulation
		Increase selected area
		Decrease selected area
		Start simulation
		Go back one step in the simulation
		Show / Hide the selection-border
		Remove all saved dermabrasion simulations of this image
S	O	Show Simulated / Original image
M+	RM	Place / Get the image on/from the Clipboard

Skin Procedures - Cheek Implants

The intention of the simulation is to visualize the probable final result of a cheek implants treatment. It does not simulate intermediate stages of the treatment process.
Mark the area that will be treated. To do so press the left mouse button and keep it pressed while drawing a border around the specific area. If the left mouse button is released the outline will be closed automatically. Press the right mouse button to start the calculation of the softening.
If the simulated result is not impressive enough simply redo the simulation by pressing the right mouse button again.
If the simulated result is not satisfying, there is the possibility of changing the pre-defined parameter settings on the right and redoing the simulation. The three parameters have the following influence on the simulation:

- Blur Factor: determines the level of smoothening and ranges from 1 (strong smoothening) to 20 (very light smoothening)
- Dilate Factor: determines the transition from the simulated area to the surrounding area and ranges from 1 (smooth edge) to 10 (sharp edge)
- Effect Opacity: determines the level of the simulation effect and ranges from 1 (strong simulation effect) to 100 (very light simulation effect)

To change the settings, select the appropriate bar to the right of the image. It will be highlighted by a green color. Use the right and left keys ($\rightarrow \leftarrow$) to increase or decrease the particular setting.
To demonstrate the changes in the simulated image use the icons **S** and **O** to switch between the **S**imulated and the **O**riginal image.

To have the simulated image ready for a different treatment simulation, select the icon **M+**. Go to the treatment method that should follow the implantation of cheek implants and select the icon **RM** to start the simulation on the previously simulated image.

To save the simulation Select **OK**. To leave the cheek implants simulation without saving the results, Select **CANCEL**.

Menu buttons

		Select area for simulation
		Increase selected area
		Decrease selected area
		Start simulation
		Go back one step in the simulation
		Show / Hide the selection-border
		Remove all saved cheek implants simulations of this image
		Show Simulated / Original image
		Place / Get the image on/from the Clipboard

Skin Procedures – Botox

The intention of the simulation is to visualize the probable final result of a Botox injection treatment. It does not simulate intermediate stages of the treatment process.

Mark the area that will be treated. To do so press the left mouse button and keep it pressed while drawing a border around the specific area. If the left mouse button is released the outline will be closed automatically. Press the right mouse button to start the calculation of the softening.

If the simulated result is not impressive enough simply redo the simulation by pressing the right mouse button again.

If the simulated result is not satisfying, there is the possibility of changing the pre-defined parameter settings on the right and redoing the simulation. The three parameters have the following influence on the simulation:

- Blur Factor: determines the level of smoothening and ranges from 1 (strong smoothening) to 20 (very light smoothening)
- Dilate Factor: determines the transition from the simulated area to the surrounding area and ranges from 1 (smooth edge) to 10 (sharp edge)
- Effect Opacity: determines the level of the simulation effect and ranges from 1 (strong simulation effect) to 100 (very light simulation effect)

To change the settings, select the appropriate bar to the right of the image. It will be highlighted by a green color. Use the right and left keys ($\rightarrow \leftarrow$) to increase or decrease the particular setting.

To demonstrate the changes in the simulated image use the icons **S** and **O** to switch between the **S**imulated and the **O**riginal image.

To have the simulated image ready for a different treatment simulation, select the icon **M+**. Go to the treatment method that should follow the Botox injection and select the icon **RM** to start the simulation on the previously simulated image.

To save the simulation Select **OK**. To leave the Botox injection simulation without saving the results, Select **CANCEL**.

Menu buttons

Select area for simulation

Increase selected area

Decrease selected area

Start simulation

Go back one step in the simulation

Show / Hide the selection-border

Remove all saved Botox simulations of this image

Show Simulated / Original image

Place / Get the image on/from the Clipboard

Skin Procedures - Acne Treatment

The intention of the simulation is to visualize the probable final result of an acne treatment. It does not simulate intermediate stages of the treatment process.

Mark the area that will be treated. To do so press the left mouse button and keep it pressed while drawing a border around the specific area. If the left mouse button is released the outline will be closed automatically. Press the right mouse button to start the calculation of the softening.

If the simulated result is not impressive enough simply redo the simulation by pressing the right mouse button again.

If the simulated result is not satisfying, there is the possibility of changing the pre-defined parameter settings on the right and redoing the simulation. The three parameters have the following influence on the simulation:

- Blur Factor: determines the level of smoothening and ranges from 1 (strong smoothening) to 20 (very light smoothening)
- Dilate Factor: determines the transition from the simulated area to the surrounding area and ranges from 1 (smooth edge) to 10 (sharp edge)
- Effect Opacity: determines the level of the simulation effect and ranges from 1 (strong simulation effect) to 100 (very light simulation effect)

To change the settings, select the appropriate bar to the right of the image. It will be highlighted by a green color. Use the right and left keys ($\rightarrow \leftarrow$) to increase or decrease the particular setting.

To demonstrate the changes in the simulated image use the icons **S** and **O** to switch between the **S**imulated and the **O**riginal image.

To have the simulated image ready for a different treatment simulation Select the icon **M+**. Go to the treatment method that should follow the acne treatment and Select the icon **RM** to start the simulation on the previously simulated image.

To save the simulation Select **OK**. To leave the acne treatment simulation without saving the results, Select **CANCEL**.

Menu buttons

		Select area for simulation
		Increase selected area
		Decrease selected area
		Start simulation
		Go back one step in the simulation
		Show / Hide the selection-border
		Remove all saved acne treatment simulations of this image
S	O	Show Simulated / Original image
M+	RM	Place / Get the image on/from the Clipboard

Skin Procedures - Mole Removal

The intention of the simulation is to visualize the probable final result of a removal of a benign mole, an age spot or a tattoo by laser. It does not simulate intermediate stages of the treatment process or the result of an excision of a suspected lesion that leaves a scare behind.
There are two ways of simulating the removal: automatic or manual. Choose the simulation type by selecting the particular button at the right top (automatic is the default setting).

Automatic

Position the cross in the center of the mole or age spot and press the left mouse button. The mole or age spot will be circled. Select the **+** and **–** icons to increase or decrease the circled area. The mole or age spot as well as a little bit of surrounding skin should be inside the circle. Press the right mouse button to start the calculation of the removal.

Menu buttons

		Select area for simulation
		Increase selected area
		Decrease selected area
		Start simulation
		Go back one step in the simulation
		Remove all saved mole removal simulations of this image
S	O	Show Simulated / Original image
M+	RM	Place / Get the image on/from the Clipboard

Define the skin color close to the lesion, which should be removed by moving the cross to that position and pressing the left mouse button (the selected color appears in the menu bar). Press the right mouse button to switch to the over painting-mode. Keep the left mouse button pressed while moving over the lesion until it is removed. Press the right mouse button again to get back to the skin color-definition mode.

Menu buttons

Thickness of the over painting line (thinnest is default setting)	
Define the skin color	
Remove the lesion	
Go back one step in the simulation	
Remove all saved mole removal simulations on this image	
Show Simulated / Original image	
Place / Get the image on/from the Clipboard	

To demonstrate the changes in the simulated image use the icons **S** and **O** to switch between the **S**imulated and the **O**riginal image.

To have the simulated image ready for a different treatment simulation, select the icon **M+**. Go to the treatment method that should follow the mole removal and select the icon **RM** to start the simulation on the previously simulated image.

To save the simulation, select **OK**. To leave the mole removal simulation without saving the results, select **CANCEL**.

Body Contouring Procedures - Liposuction (Fat Removal)

The intention of the simulation is to visualize the probable final result of a liposuction. It does not simulate intermediate stages of the treatment process.
For the liposuction simulation it is important to have the image taken in front of a single-color backdrop.
To simulate a liposuction the current contour of the area to treat and the contour of the desired result need to be defined.

Up to four contours can be defined. Number 1 should be used for the simulation of a liposuction where the contour moves from the left to the right. Number 4 should be used when simulating a liposuction from the right to the left. The numbers 2 and 3 should be used for the liposuction of the inner legs. Select the appropriate number at the right top corner and follow the steps below for each contour.
First, the current contour has to be marked. To do so move the cross to the area to treat and define up to six points which show the contour of that area. The software will convert these points into a line. To delete the last point set press the right mouse button.

To modify the outline Select the option **Modify Source** in the top right corner and Select those points that should be re-positioned. The selected points appear in blue color. Move those points using the arrows to the right of the image.
Second, the contour of the desired result has to be set. To do so, select the option **Modify Destination** in the top right corner. Use the arrows to the right of the image to move the yellow destination line. Remember that only the blue points are moved. To move also the corner points select them and select the arrows to the right of the image. The original contour is displayed in white color. Press the right mouse button if you want to start again from the original contour.

After having defined all contours select the liposuction icon to show the simulated result. Select the icon **Show / Hide Lines** to view the image without the original and the destination outlines.
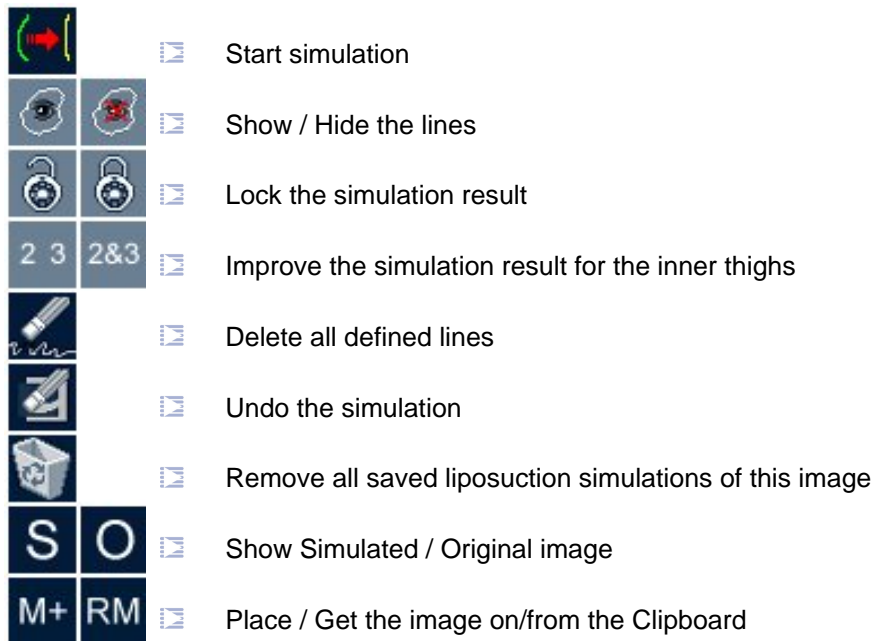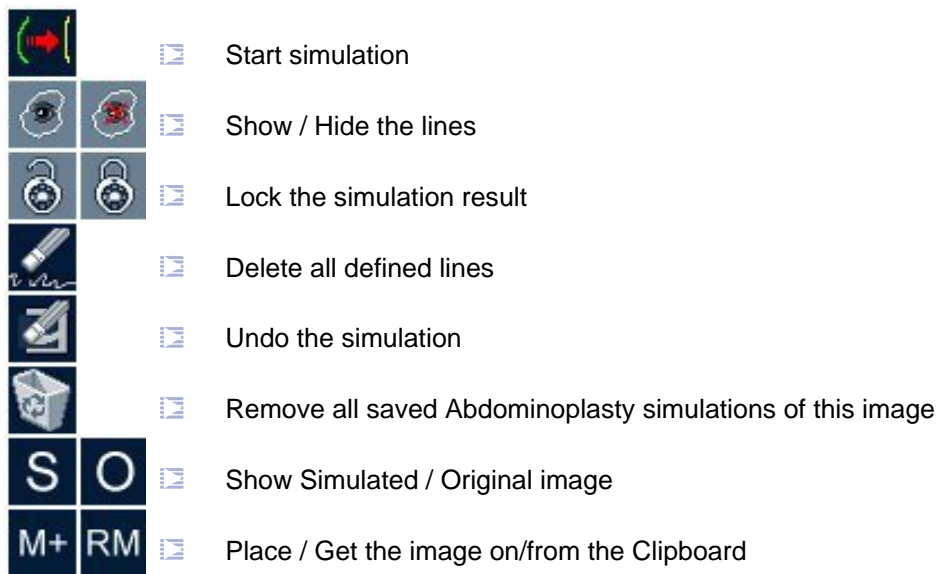If the simulated result should be slightly improved, lock the first result by selecting the **Lock** icon and simply redo the simulation by selecting the liposuction icon again.
To demonstrate the changes in the simulated image use the icons **S** and **O** to switch between the **S**imulated and the **O**riginal image.

To have the simulated image ready for a different treatment simulation, select the icon **M+**. Go to the treatment method that should follow the liposuction and select the icon **RM** to start the simulation on the previously simulated image.

To save the simulation, select **OK**. To leave the liposuction simulation without saving the results, Select **CANCEL**.

Menu buttons

	Start simulation
	Show / Hide the lines
	Lock the simulation result
	Improve the simulation result for the inner thighs
	Delete all defined lines
	Undo the simulation
	Remove all saved liposuction simulations of this image
	Show Simulated / Original image
	Place / Get the image on/from the Clipboard

Body Contouring Procedures - Abdominoplasty (Tummy Tuck)

The intention of the simulation is to visualize the probable final result of an Abdominoplasty. It does not simulate intermediate stages of the treatment process.

For the Abdominoplasty simulation it is important to have the image taken in front of a single-color backdrop. Take the image of the patient turned to the lateral position.
To simulate an Abdominoplasty the current contour of the abdomen and the contour of the desired result need to be defined.

First, the current contour has to be marked. To do so move the cross to the area to treat and define up to six points which show the contour of the abdomen. The software will convert these points into a line. To delete the last point set press the right mouse button.

To modify the contour select the option **Modify Source** in the top right corner and select those points that should be re-positioned. The selected points appear in blue color. Move those points using the arrows to the right of the image.
Second, the contour of the desired result has to be set. To do so, select the option **Modify Destination** in the top right corner. Use the arrows to the right of the image to move the yellow destination line. Remember that only the blue points are moved. To move also the corner points select them and select the arrows to the right of the image. The original contour is displayed in white color. Press the right mouse button if you want to start again from the original contour.

Select the Abdominoplasty icon to show the simulated result. Select the icon **Show / Hide Lines** to view the image without the original and the destination outline.
If the simulated result should be slightly improved, lock the first result by selecting the **Lock** icon and simply redo the simulation by selecting the Abdominoplasty icon again.
To demonstrate the changes in the simulated image use the icons **S** and **O** to switch between the **S**imulated and the **O**riginal image.

To have the simulated image ready for a different treatment simulation, select the icon **M+**. Go to the treatment method that should follow the Abdominoplasty and select the icon **RM** to start the simulation on the previously simulated image.

To save the simulation, select **OK**. To leave the Abdominoplasty simulation without saving the results, select **CANCEL**.

Menu buttons

		Start simulation
		Show / Hide the lines
		Lock the simulation result
		Delete all defined lines
		Undo the simulation
		Remove all saved Abdominoplasty simulations of this image
S O		Show Simulated / Original image
M+ RM		Place / Get the image on/from the Clipboard

Facial Procedures - Lip Augmentation

The intention of the simulation is to visualize the probable final result of a lip augmentation. It does not simulate intermediate stages of the treatment process.
For the lip augmentation simulation it is recommended that the patient has his/her lips slightly opened when the image is taken.

To simulate a lip augmentation the current contour of the upper and lower lip and the contour of the desired result need to be defined.

First, the current contour of the upper lip has to be marked. To do so move the cross to the left end of the lips and define up to six points, which show the contour of the upper lip. It is recommended to use at least five points. To do that mark the left and right end of the lips and three points that mark the lip heart. The software will convert these points into a line. To delete the last point set press the right mouse button.

To modify the contour of the upper lip select the option **Modify Source** in the top right corner and select those points that should be re-positioned. The selected points appear in blue color. Move those points using the arrows to the right of the image.
Second, the contour of the desired result has to be set. To do so, select the option **Modify Destination** in the top right corner. Use the arrows to the right of the image to move the yellow destination line. Remember that only the blue points are moved. To move also the corner points select them and select the arrows to the right of the image. The original contour is displayed in white color. Press the right mouse button if you want to start again from the original contour.

Third, the separation line has to be defined. To do so, select the Separation line icon at the right top corner and move the cross to the left end of the lips. Define at least three points that show the separation of the upper from the lower lip. The software will convert these points into a line. To delete the last point set press the right mouse button.

Fourth, the current contour of the lower lip has to be marked. To do so, select the Lower Lip Definition icon at the right top corner and move the cross to the left end of the lips. It is recommended to use at least three points that show the contour of the lower lip. Two points that mark the left and right end of the lips and one point that marks the lowest point of the lower lip. The software will convert these points into a line. To delete the last point set press the right mouse button.

To modify the contour of the lower lip select the option **Modify Source** in the top right corner and select those points that should be re-positioned. The selected points appear in blue color. Move those points using the arrows to the right of the image.

Fifth, the contour of the desired result has to be set. To do so, select the option **Modify Destination** in the top right corner. Use the arrows to the right of the image to move the yellow destination line. Remember that only the blue points are moved. To move also the corner points select them and select the arrows to the right of the image. The original contour is displayed in white color. Press the right mouse button if you want to start again from the original contour.

After having defined all contours select the lip augmentation icon to show the simulated result. Select the icon **Show / Hide Lines** to view the image without the original and the destination outline.

If the simulated result should be slightly improved, lock the first result by selecting the **Lock** icon and simply redo the simulation by selecting the lip augmentation icon again.

To demonstrate the changes in the simulated image use the icons **S** and **O** to switch between the **S**imulated and the **O**riginal image.

To have the simulated image ready for a different treatment simulation, select the icon **M+**. Go to the treatment method that should follow the lip augmentation and select the icon **RM** to start the simulation on the previously simulated image.

To save the simulation select **OK**. To leave the lip augmentation simulation without saving the results, select **CANCEL**.

Menu buttons

		Start simulation
		Show / Hide the lines
		Lock the simulation result
		Delete all defined lines
		Undo the simulation
		Remove all saved lip augmentation simulations of this image
S O		Show Simulated / Original image
M+ RM		Place / Get the image on/from the Clipboard

Facial Procedures – Epilation

The intention of the simulation is to visualize the probable final result of an Epilation. It does not simulate intermediate stages of the treatment process.
Mark the area that will be treated. To do so press the left mouse button and keep it pressed while drawing a border around the specific area. If the left mouse button is released the outline will be closed automatically. The hair roots as well as a little bit of surrounding skin should be inside the outlined area. Press the right mouse button to show the result of an Epilation.
If the simulated result is not impressive enough simply redo the simulation by pressing the right mouse button again.

To demonstrate the changes in the simulated image use the icons **S** and **O** to switch between the Simulated and the **O**riginal image.

To have the simulated image ready for a different treatment simulation select the icon **M+**. Go to the treatment method that should follow the Epilation and Select the icon **RM** to start the simulation on the previously simulated image.

To save the simulation Select **OK**. To leave the Epilation simulation without saving the results, select **CANCEL**.

Menu buttons

Icon		Description
		Select area for simulation
		Increase selected area
		Decrease selected area
		Start simulation
		Go back one step in the simulation
		Show / Hide the selection-border
		Remove all saved Epilation simulations of this images
		Show Simulated / Original image
		Place / Get the image on/from the Clipboard

Facial Procedures – Rhinoplasty – Front View

The intention of the simulation is to visualize the probable final result of a rhinoplasty -nose correction. It does not simulate intermediate stages of the treatment process.
For the rhinoplasty simulation in a front view it is recommended that the patient has his/her face turned straight to the camera when the image is taken.

To simulate a rhinoplasty in front view the current border of the left and right side of the nose and the border of the desired result need to be defined.

First, the current contour of the left side of the nose has to be marked. To do so move the cross to the left side of the nose and define up to six points, which mark the left border of the nose. It is recommended to use at least four points. After points are marked the software will convert these points into a line. To delete the last point set press the right mouse button.

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To modify the left border of the nose select the option **Modify Source** in the top right corner and select those points that should be re-positioned. The selected points appear in blue color. Move those points using the arrows to the right of the image.

Second, the contour of the desired result has to be set. To do so, select the option **Modify Destination** in the top right corner. Use the arrows to the right of the image to move the yellow destination line. Remember that only the blue points are moved. To move also the corner points select them and select the arrows to the right of the image. The original contour is displayed in white color. Press the right mouse button if you want to start again from the original contour.

The same procedure should now be done for the right side of the nose. After source border line and destination border lines are defined simulation can be done

After having defined all contours select the rhinoplaysty icon to show the simulated result. Select the icon **Show / Hide Lines** to view the image without the original and the destination outline.
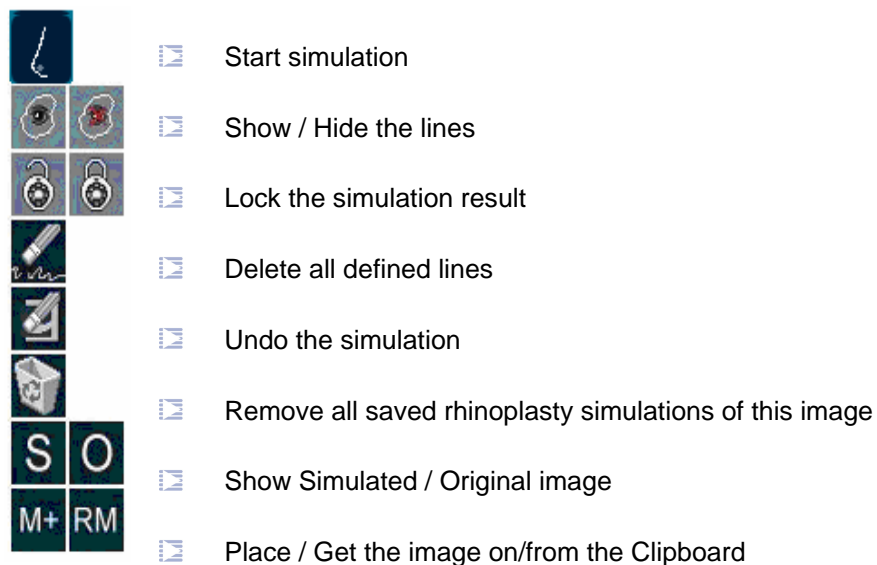If the simulated result should be slightly improved, lock the first result by selecting the **Lock** icon and simply redo the simulation by selecting the rhinoplasty icon again.
To demonstrate the changes in the simulated image use the icons **S** and **O** to switch between the **S**imulated and the **O**riginal image.

To have the simulated image ready for a different treatment simulation, select the icon **M+**. Go to the treatment method that should follow the rhinoplasty and select the icon **RM** to start the simulation on the previously simulated image.

To save the simulation, select **OK**. To leave the rhinoplasty simulation without saving the results, select **CANCEL**.

Menu buttons

		Start simulation
		Show / Hide the lines
		Lock the simulation result
		Delete all defined lines
		Undo the simulation
		Remove all saved rhinoplasty simulations of this image
S O		Show Simulated / Original image
M+ RM		Place / Get the image on/from the Clipboard

Facial Procedures – Rhinoplasty – Side View

The intention of the simulation is to visualize the probable final result of a rhinoplasty -nose correction. It does not simulate intermediate stages of the treatment process.
For the rhinoplasty simulation in a side view it is recommended that the patient has his/her face turned away from to the camera for about 60 degrees when the image is taken.

To simulate rhinoplasty in a side view the current border of the nose and the border of the desired result as well as the separation line need to be defined.

First, the current contour of the nose has to be marked. To do so move the cross to the nose border and define up to six points, which mark the border. It is recommended to use at least four points. After points are marked the software will convert these points into a line. To delete the last point set press the right mouse button.

To modify the border of the nose select the option **Modify Source** in the top right corner and select those points that should be re-positioned. The selected points appear in blue color. Move those points using the arrows to the right of the image.

Second, the contour of the desired result has to be set. To do so, select the option **Modify Destination** in the top right corner. Use the arrows to the right of the image to move the yellow destination line. Remember that only the blue points are moved. To move also the corner points select them and select the arrows to the right of the image. The original contour is displayed in white color. Press the right mouse button if you want to start again from the original contour.

After having defined all contours select the rhinoplasty icon to show the simulated result. Select the icon **Show / Hide Lines** to view the image without the original and the destination outline.
If the simulated result should be slightly improved, lock the first result by selecting the **Lock** icon and simply redo the simulation by selecting the rhinoplasty icon again.
To demonstrate the changes in the simulated image use the icons **S** and **O** to switch between the **S**imulated and the **O**riginal image.

To have the simulated image ready for a different treatment simulation, select the icon **M+**. Go to the treatment method that should follow the rhinoplasty and select the icon **RM** to start the simulation on the previously simulated image.

To save the simulation, select **OK**. To leave the rhinoplasty simulation without saving the results, select **CANCEL**.

Menu buttons

		Start simulation
		Show / Hide the lines
		Lock the simulation result
		Delete all defined lines
		Undo the simulation
		Remove all saved rhinoplasty simulations of this image
		Show Simulated / Original image
		Place / Get the image on/from the Clipboard

Finalizing CosMax Simulations

After all desired simulations are completed save the image and exit to Main menu by clicking **F10**.

8. Services

MoleMax Services Menu is activated by clicking the SERVICES button in MoleMax Main menu

Important functions such as MoleMax Backup, as well as Data Import, Data Export, Statistics, Patient Management, Education Module and Expertizer services are located within this menu.

After entering MoleMax Services Menu following screen is displayed:
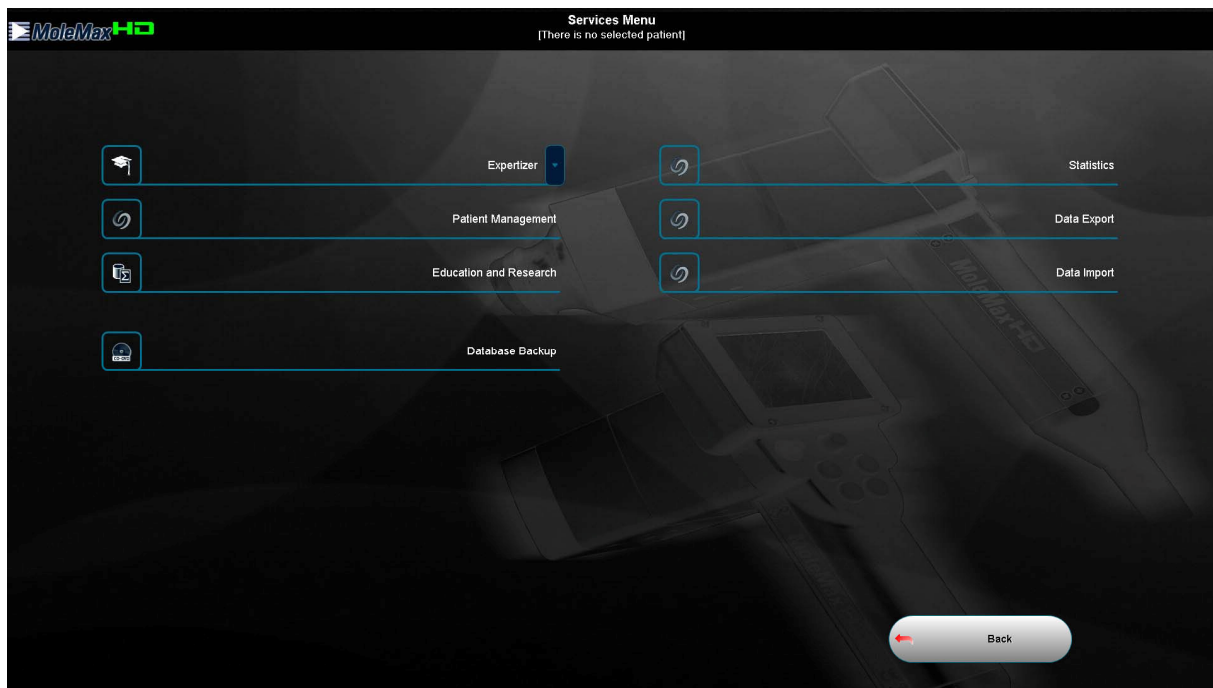
8.1. Expertizer Services

The Expertizer software was developed in co-operation with the Department of Dermatology at the Medical School Vienna. It is designed to be an interactive learning add-on module to the standard MoleMax Software.

Expertizer software is divided into two parts. While Expertizer scoring methods (ABCD and 7-Point rule) are integrated into MoleMax SCORING menu (described in "Scoring" Chapter of this manual), Self Assessment, Diagnose examples and ELM Criteria examples are available within SERVICES Menu.

MoleMax Expertizer Services Menu is activated by clicking the arrow on the right side of Expertizer icon in Services Menu.
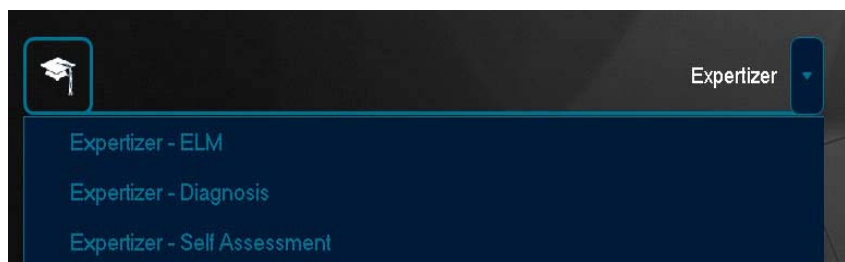
8.1.1. Expertizer – ELM (Review Reference Images)

Select the symbol **EXPERTIZER – ELM** in the Expertizer icon within Services Menu to view the reference images according to the list of ELM criteria as known from pattern analysis study.

> **!**
>
> **IMPORTANT**
> Reference images are installed on your hard drive during MoleMax installation

To clarify the ELM-criteria in each image, these elements have been highlighted in each example to improve the utility of the Expertizer, and to further aid the understanding of the user.
Select an ELM criterion from the list to view the corresponding reference images. The chosen category opens. Use arrows to navigate and select the criteria as known from Windows Explorer.

Below the reference images the description of the corresponding ELM criteria in the lesion can be found. Use the scrollbar on the right side to scroll down in the text. Above the reference images the diagnosis is displayed.
To change to the original size of the reference image Select **FULL PICTURE** or move the cursor over the image and press a mouse button. In the full size picture mode the following functions can be executed:
  zooming in / out
  moving the image left and right
  viewing the image in full size pixel by pixel

To use these functions select the corresponding icon on the right side of the image.

Select the **+** or **-** buttons under the image description to get to the next or the previous image.

Select the **BACK** buttons to exit the Expertizer or simply press the **F10** key to return to the MoleMax Main menu.

8.1.2. Expertizer – Diagnosis (Review Reference Images)

Select the symbol **EXPERTIZER – DIAGNOSIS** in the Expertizer icon in Services Menu to view reference images grouped according to the Diagnosis criteria they exhibit.
Please note this diagnosis list is build from melanoma point of view as known from pattern analysis study.

Select one of the following main categories of diagnoses on the left side of the screen: Melanoma, Nevi and Non-Melanocytic Lesions to view the corresponding reference images. The chosen category opens. Use arrows to navigate and select the criteria as known from Windows Explorer.

Below the reference images the description of the main features in the lesion can be found. Use the scrollbar on the right side to scroll down in the text. Above the reference images the diagnosis is displayed.
To change to the original size of the reference image Select **FULL PICTURE** or move the cursor over the image and press a mouse button. In the full size picture mode the following functions can be executed:

- zooming in / out
- moving the image left and right
- viewing the image in full size pixel by pixel

To use these functions select the corresponding icon on the right side of the image.

Select the **+** or **-** buttons under the image description to get to the next or the previous image.

Select the **BACK** buttons to exit the Expertizer or simply press the **F10** key to return to the MoleMax Main menu.

8.1.3. Expertizer – Self Assessment (Review Reference Images)

Select the symbol **EXPERTIZER – ASSESSMENT** in the Expertizer icon in Services Menu to enter SELF ASSESSMENT module.

In the self-assessment function the doctor can test her/his diagnostic accuracy. The physician can choose from three different levels.
In Level A tests, the physician is asked to classify the test lesions in definitely benign, more benign than malignant, more malignant than benign and definitely malignant.
In Level B tests, the test person has to be more distinctive than in Level A and has to decide whether or not to excise the lesion.
In Level C tests, the doctor has to diagnose the test lesions.
After each test the doctor can review her/his wrong answers. Using this feedback possibility, the physician can improve her/his diagnostic accuracy.

Step 1:

Select the test level.
Choose Level A for classification between benign and malignant, Level B for deciding on interventions or Level C for giving the diagnosis.

Step 2:

Enter the number of images that should be included in the test. If not a different number is specified each test includes 30 images.
In Level A and B between 4 and 129 images can be evaluated, in Level C between 1 and 291.
Enter the name of the test person in the appropriate line (optional).

Step 3:

Select **START** to start the test.
In Level A choose one of the following possible answers for each image:

- This lesion is definitely benign
- This lesion is more benign than malignant
- I don't know
- This lesion is more malignant than benign
- This lesion is definitely malignant

In Level B choose one of the following possible answers for each image:

- No intervention
- Intervention

In Level C choose one of the following possible answers for each image:

- Common Nevus
- Spitz's Nevus
- Atypical / Dysplastic Nevus
- Melanoma

REMEMBER

Diagnoses that indicate benign lesions are displayed in green, diagnoses that indicate atypical lesions are displayed in white and diagnoses that indicate malignant lesions are displayed in red.

Select **NEXT** to receive the next test lesion.

REMEMBER

The number of lesions left in the test is displayed above the current image.

Test Results

After the test has been finished the following results are displayed on-screen.

Level A

ROC (Receiver Operating Characteristics) Curve shows the Sensitivity (% of correctly identified melanoma) in relation to the Specificity (% of correctly identified benign lesions). It is a graphical representation of the test person's performance.

Correctly identified lesions are those images where a correct classification in definitely benign or definitely malignant was made.

Performance is the percentage of how many lesions were classified into the correct category (benign lesions classified as definitely benign or more benign than malignant and vice versa).

Gain shows by how many percent the test person's result is better than answers just guessed. If all answers are wrong (benign lesions classified as definitely malignant or more malignant than benign and vice versa) the gain is 0. Correct answers for improving the gain are those where the lesion was classified into the correct category (benign lesions classified as definitely benign or more benign than malignant and vice versa).

Max. Sensitivity / Specificity indicates the highest percentage value where the sensitivity and the specificity equal each other. This point is displayed in yellow on the ROC curve.

MoleMax Test Score is a weighted average score given in % for the performance in this test. For Level A tests it is calculated by adding up the following values for each answer and by dividing it by the number of test lesions:

Correct Answer	Doctor's answer	Points received (in %)
Definitely benign	Definitely benign	100
Definitely benign	More benign than malignant	60
Definitely benign	I don't know	30
Definitely benign	More malignant than benign	10
Definitely benign	Definitely malignant	0
Definitely malignant	Definitely benign	0
Definitely malignant	More benign than malignant	10
Definitely malignant	I don't know	30
Definitely malignant	More malignant than benign	60
Definitely malignant	Definitely malignant	100

Level B
Correctly identified lesions are those images where the correct intervention was defined - no interventions for benign lesions and excisions for melanoma.
Sensitivity is the percentage of correctly identified or diagnosed melanoma. It is calculated by the following formula:
Correctly identified melanoma / (Correctly identified melanoma & Missed Melanoma)
Specificity is the percentage of correctly identified or diagnosed benign lesions. It is calculated by the following formula:
Correctly identified benign lesions / (Correctly identified benign lesions & Unnecessarily excised benign lesions)
Accuracy is the ratio of correctly identified lesions and the number of test lesions.
MoleMax Test Score is a weighted average score given in % for the performance in this test. For Level B tests it is calculated by adding up the following values for each answer and by dividing it by the number of test lesions:

Correct Answer	Doctor's answer	Result	Points received (in %)
No intervention	No intervention	Correct Decision	100
Intervention	Intervention	Correct Decision	100
No intervention	Intervention	Unnecessary Excision	40
Intervention	No intervention	Missed Melanoma	0

Level C
Number of correct diagnoses shows how many test lesions were correctly diagnosed.
Correct category – wrong diagnosis are those cases where a common nevus was diagnosed as Spitz's nevus and vice versa.
Incorrect diagnoses – missed by one category shows those cases where the test person missed the correct diagnosis by one category (benign lesions diagnosed as atypical, malignant lesions diagnosed as atypical or atypical lesions diagnosed as benign or malignant).
Incorrect diagnoses – missed by two categories shows those cases where the test person missed the correct diagnosis by two categories (benign lesions diagnosed as malignant or malignant lesions diagnosed as benign).
MoleMax Test Score is a weighted average score given in % for the performance in this test. For Level C tests it is calculated by adding up the following values for each answer and by dividing it by the number of test lesions:

Correct Answer	Doctor's answer	Points received (in %)
Common Nevus	Common Nevus	100
Common Nevus	Spitz's Nevus	80
Common Nevus	Atypical/Dyspl. Nevus	40
Common Nevus	Melanoma	0
Spitz's Nevus	Spitz's Nevus	100
Spitz's Nevus	Common Nevus	80
Spitz's Nevus	Atypical/Dyspl. Nevus	40
Spitz's Nevus	Melanoma	0
Atypical/Dyspl. Nevus	Atypical/Dyspl. Nevus	100
Atypical/Dyspl. Nevus	Common or Spitz's Nevus	40
Atypical/Dyspl. Nevus	Melanoma	40
Melanoma	Melanoma	100
Melanoma	Atypical/Dyspl. Nevus	40
Melanoma	Common or Spitz's Nevus	0

Test Review

To improve the diagnostic accuracy, the test person should review the incorrect answers after the test. Depending on the test results the following images for review can be chosen to be included in the feedback.

Level A

- Include wrong identified melanoma
- Include wrong identified benign lesions
- Include correctly and almost correctly identified lesions

Select one or more review options and Select **REVIEW**.
Above each image the correct diagnosis and the test person's answer is displayed.
Correct answers are marked by a green check mark on the right side of the image.

REMEMBER
- Diagnoses that indicate benign lesions are displayed in green; diagnoses that indicate malignant lesions are displayed in red.
- Answers that suggest definitely benign lesions are displayed in green; answers that suggest definitely malignant lesions are displayed in red. Answers where the test person was not definitely sure (more benign, I don't know or more malignant) are displayed in white.

Level B

- Include wrong identified melanomas
- Include wrong identified benign lesions
- Include correctly identified lesions

Select one or more review options and Select **REVIEW**.
Above each image the correct diagnosis and the test person's answer is displayed.
Correct answers are marked by a green check mark on the right side of the image.

REMEMBER
- Diagnoses that indicate benign lesions are displayed in green; diagnoses that indicate malignant lesions are displayed in red.
- Answers that suggest no intervention are displayed in green; answers that suggest an excision are displayed in red.

Level C

- Include lesions with wrong diagnoses, missed by two categories
- Include lesions with wrong diagnoses, missed by one category
- Include lesions from correct category with wrong diagnoses
- Include lesions with correct diagnoses

Select one or more review options and Select **REVIEW**.
Above each image the correct diagnosis and the test person's answer is displayed.
Correct answers are marked by a green check mark on the right side of the image.

REMEMBER
- Diagnoses that indicate benign lesions are displayed in green, diagnoses that indicate atypical lesions are displayed in white and diagnoses that indicate malignant lesions are displayed in red.

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8.2. Database Backup

Apart from functions described in chapters "New Image" and "Follow Up" the most important function of the MoleMax HD system is BACKUP.

This functions backs up all MoleMax HD data necessary to rebuild the MoleMax HD system with ALL PATIENT DATA in case of physical or mechanical failure of MoleMax HD system.

TAKE CARE TO DO BACKUP AT LEAST ONCE A WEEK

As a standard procedure during the work with MoleMax HD system all data is stored on the internal hard disk. In case of an emergency it is helpful to have the patient data and the images saved on an external media. The system is therefore equipped with DVD-*writer*. Please contact your local dealer if such a break down should occur.

Select **BACKUP** icon in the Services Menu to start BACKUP procedure. Following backup screen appears:
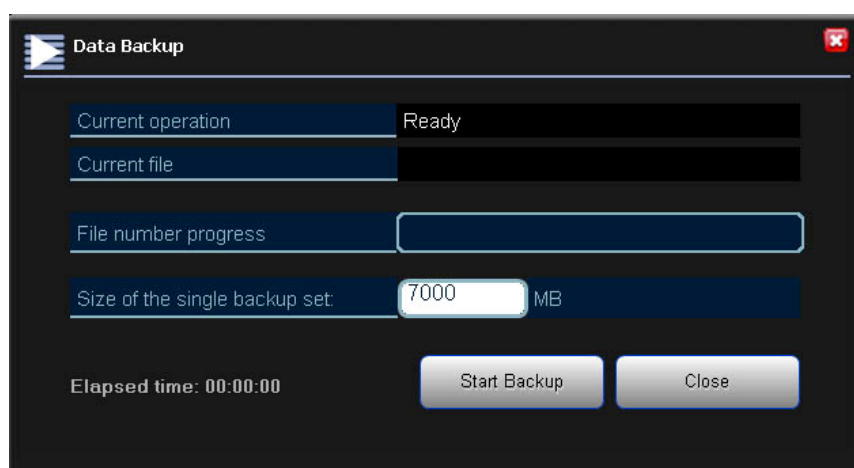
First define if backup should be done onto CD-R or DVD-R media by typing the size of a backup set. If size is less than 650 MB use CD-R media, and if size is bigger use DVD-R (or DVD-R DL) media.

Insert a CD-R or DVD-R into the DVD-writer and click the button **START BACKUP.** Backup is starting and backup progress bar is shown. After backup is completed the message "Backup Completed" will be displayed in the message field. Select **CLOSE** to return to the MoleMax main menu.

Take out the media and store it at a secure location!

REMEMBER
If Amount of Data (Data Volume Size) is too big for CD or DVD writer also Blu-Ray writer may be used

Other Backup Options

If data is stored on other devices such as *Streamer Tape, any type of Backup Drive or similar* please contact your dealer.

MoleMax Internal Backup Tool

If database is to be backed up to *Memory Stick* or *External USB Hard Drive* (RECOMMENDED) MoleMax Internal Backup Tool is the perfect option to use. It is integrated part of every MoleMax HD software and can be enabled if necessary. Refer to User Manual, Chapter "Administration" to learn how to set up this tool.

If MoleMax Internal Backup Tool is used following dialog appears when button BACKUP in Services Menu is used:
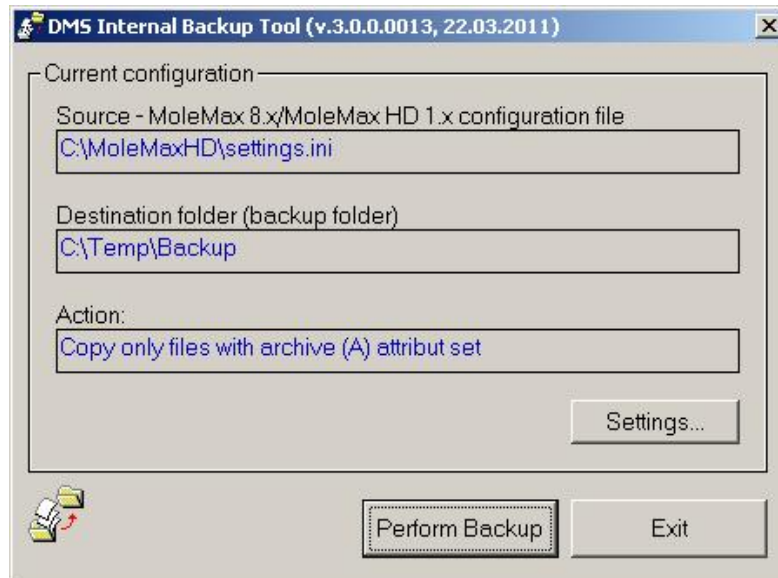
If performing the backup by using MoleMax Internal Backup Tool for the first time, click the button Settings to determine backup options. Following screen appears:
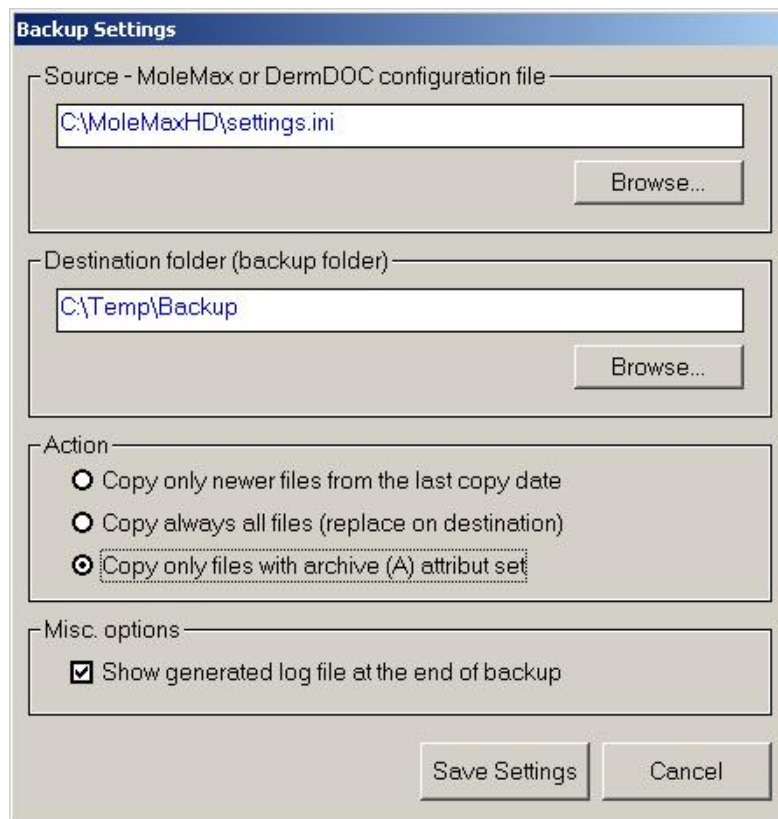
MoleMax Configuration fine is automatically selected. This file contains all the necessary information needed to backup all the vital data of the MoleMax HD system. Only by having full backup it is possible to restore the system to its full functionality and integrity in case of hard drive failure or any other breakdown.

Select Destination folder on the external drive used for backup and select amongst three backup options:

- Copy files recorded since last backup (by date)
- Copy always all files (takes the most time but performs full backup every time)
- Copy files recorded since last backup (by file attribute)

Click Save Settings and click PERFORM BACKUP.
Backup of all relevant data is started. **Please note backup may take a long time to complete!**

Server Backup
If the System is running in a network it is **highly recommended** to store the pictures on a server, mainly because of automatized backup methods used on servers. Please contact your dealer or computer administrator for more details.

REMEMBER
- Please note that also external backup writing procedure is available. See the Administration section of this manual to learn how to activate external backup

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8.3. Statistics

To enter Statistics menu click the icon **STATISTICS** in the Services Menu.
Statistics menu is divided into 4 sections: **Diagnoses**, **Patient Statistics**, **Images Statistics** and **Database Info and Statistics**.

!   **IMPORTANT**
         Please note that STATISTICS menu is the only menu in the MoleMax HD software where images of different patients can be compared.

Diagnoses

When STATISTICS menu starts Diagnose Statistics screen is displayed.

To get diverse statistics about examined images over a certain period of time click on **SEARCH** button. The results will be promptly displayed on the screen. The results include the full list of all given diagnoses in the database, the type of images recorded (macro or close-up) and the number of images taken.

If no time frame is displayed MoleMax HD software will display statistics of whole database, from the very first image. If SEARCH within certain time frame is desired simply input the start and end date in the appropriate fields.
If only recent (last) images without their pre follow ups should be displayed, click the check box "Count current images only".

All ELM, macro and/or close-up images with similar diagnoses (e.g. melanomas or acne) can be viewed and compared in a non-patient related picture gallery.
Select these by clicking appropriate check boxes on the bottom of the screen.

To do so select the diagnoses that should be displayed in the picture gallery and select **GALLERY**.

REMEMBER
         To include/exclude Macro, Close-Up or ELM images in the evaluation select the specific option on the bottom of the screen (all images selected is the default setting).

Show image in full size picture mode
To view an image in the full size picture mode select the specific image and select **FULL PICTURE**.

Comparing two images
To compare two images select two images and select **COMPARE**. Press **CANCEL** to return.

REMEMBER
         If one image is selected FULL PICTURE button is displayed

         If more than one image is selected COMPARE button is displayed

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Details about an image
To get more detailed information about an image or to make corrections select the specific image and Select **DETAILS**. Press **OK** to save and return.

Patient Statistics

To get some statistics on a specific patient click the icon Patient Statistics located on the top of the screen.
Select the patient and choose whether the statistics should be calculated for all images of the patient or for the images taken at the last visit by selecting the appropriate Selection Criteria.

If only recent (last) images without their pre follow ups should be displayed, click the check box "Count current images only".

Select **SEARCH** and the results for the chosen selection criteria are displayed in the lower window. The statistics include the diagnoses given, the type of images recorded (macro or close-up) and the number of images taken.
To view the images of a specific diagnosis select the diagnosis and select **GALLERY**.

Show image in full size picture mode
To view an image in the full size picture mode select the specific image and select **FULL PICTURE**.

Comparing two images
To compare two images select two images and select **COMPARE**. Press **CANCEL** to return.

REMEMBER
- If one image is selected FULL PICTURE button is displayed
- If more than one image is selected COMPARE button is displayed

Details about an image
To get more detailed information about an image or to make corrections select the specific image and Select **DETAILS**. Press **OK** to save and return.

Find Images

To search for specific images select the button Find Images on the top of the screen corner.
The following search criteria are available

- Search for ELM ID numbers,
- Search for File names (including wildcard characters such as * etc.)

Enter the search values in the appropriate line and select **SEARCH**. The corresponding patient names are displayed.
Select the patients and select **GALLERY**.

Show image in full size picture mode
To view an image in the full size picture mode select the specific image and select **FULL PICTURE**.

Comparing two images
To compare two images select two images and select **COMPARE**. Press **CANCEL** to return.

REMEMBER
- If one image is selected FULL PICTURE button is displayed
- If more than one image is selected COMPARE button is displayed

Details about an image
To get more detailed information about an image or to make corrections select the specific image and Select **DETAILS**. Press **OK** to save and return.

Database Statistics

To get more detailed information about Database click Database Statistics icon on the top of the screen.

Comprehensive DATABASE STATISTICS are shown. This includes:

- Database location and name
- Database size
- Number of folder sued
- Folder location on the hard drive
- Number of images
- Size images occupy on the hard drive
- Number of other (attached) documents
- Total number of files
- Total space occupied
- User name
- Number of active users

After Statistics are done click either **BACK** to return to Services menu or **F10** to return to MoleMax Main menu.

8.4. Data Export

If there is a need to transfer images of one patient to another computer as in the case when Patient moves from one city to another, or if there is need to export one or more particular images Data Export function is used.

Click on **DATA EXPORT** icon in the Services menu to enter Exporting menu shown below.

There are two basic options when using Data Export:

- Patient export
- Image Export

Select Either Patient Export or Image Export by clicking appropriate check box on the top of the screen.

Patient Export

There are two Patient Export formats to choose from:

- MoleMax HD Export format
- HTML Export format

Select export format from the selection menu on the bottom of the Exporting screen. Use MoleMax 8.0 format when transferring patient record to another MoleMax and use HTML format if you simply want to give the patient his patient record that can be viewed by using any common HTML browser software such as Internet Explorer, Opera or Mozilla Firefox.

Select Patient to export from the top window and a destination where to export it in the bottom window (Tree as known from standard Windows Explorer).

Click **EXPORT PATIENT** button to export the patient and wait until files are transferred.

REMEMBER
- If Patient export is done in MoleMax 8.0 format all images are exported in their original format

- Patient file is exported in MoleMax proprietary format

After Export is completed click either **BACK** to return to Services menu or **F10** to return to MoleMax Main menu.

Image Export

If you want to export particular images click check box Export Images and Image Export screen is displayed.

Select export format from the selection menu on the bottom of the Exporting screen. Diverse export formats such as JPEG, PDF, BMP or PCX formats are offered within MoleMax HD software.

Select Patient whose images you want to export from the top window and a destination where to export it in the bottom window (Tree as known from standard Windows Explorer).

Click the button **SELECT IMAGES** to choose the images to export and familiar 3x3 screen appears. Select the images to export, click the button **EXPORT** and wait until files are transferred.

After Export is completed click either **BACK** to return to Services menu or **F10** to return to MoleMax Main menu.
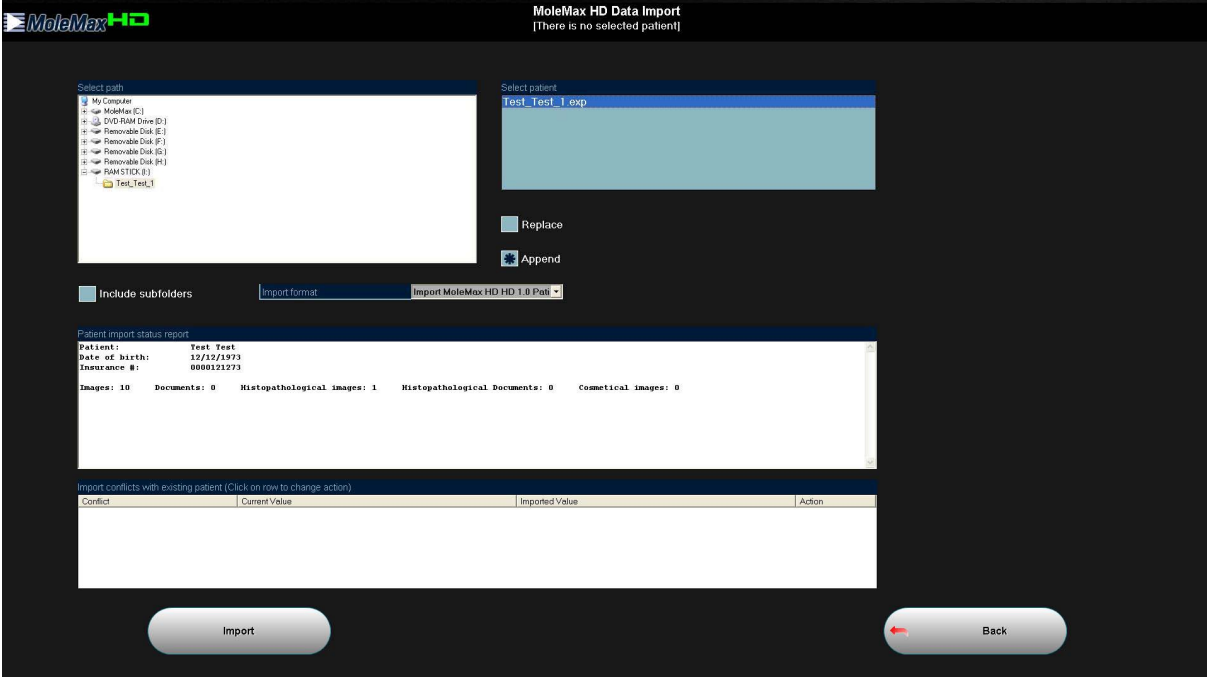
8.5. Data Import

If there is a need to import a patient record as in the case when Patient moves from one city to another, Data Import function is used.

	IMPORTANT
!	Data import should be used only for transferring patient data from one MoleMax to another
	For all other import functions Image File import should be used

Click on **DATA IMPORT** icon in the Services menu to enter Importing menu shown below.

Point to the MoleMax import file by using tree menu as known from Windows Explorer. After correct file is selected it is shown in the window on the right side and associated files to import are listed in the bottom window.
Select if the eventually existing patient files should be replaced or if new images should only be appended by clicking the appropriate check box in the top right corner.

Import the patient data by clicking the **IMPORT** button. Wait until patient is transferred into the database.

After Patient import is completed click either **BACK** to return to Services menu or **F10** to return to MoleMax Main menu.

8.6. Education and Research Module

Education and Research module is designed to help identifying and collecting interesting cases for any type of presentation or research purposes.
This collection is saved within the MoleMax HD database and it is possible to extend it at any time with new images and interesting cases. This module can be accessed from the MoleMax "Services menu":

The whole collection or only the selected part can be exported, edited, deleted at any time. The export format is HTML and can be viewed with any internet browser.

Note that collection is not patient related, i.e. can contain mixtures of images from more than one patient.

In order to use this module, one or more image must be added to the collection. There are two different methods to do that: 1) by using detailed view of the image , or 2) by using image search tool within the module itself.
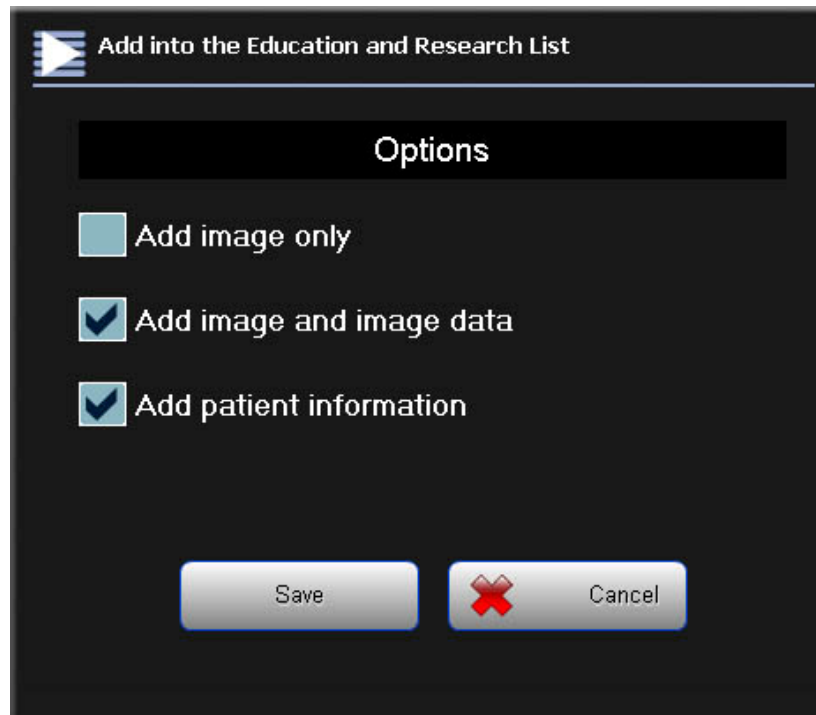
Option 1. Using DETAILS

Detailed page can be accessed during the localization of new image or by viewing the existing image's details from the History.
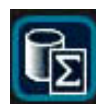
In both of cases the "Education and Research Option" icon appears on the right side of the dummy position:
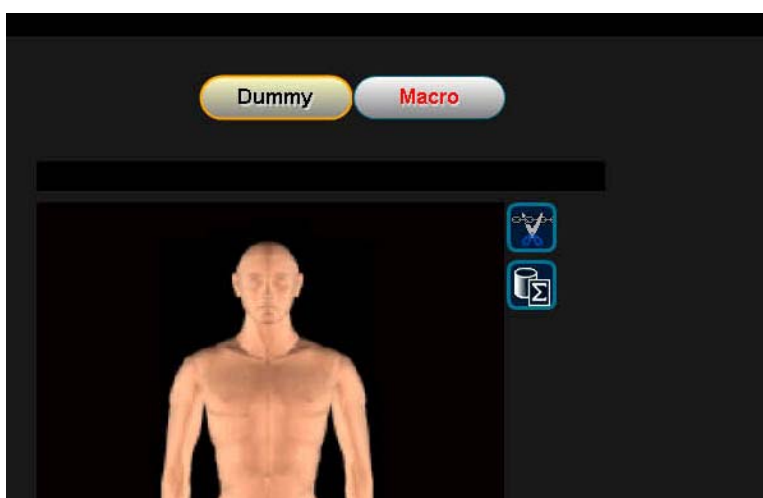
Clicking on this icon, ER option dialog appears:

User has choice to include only the image to the collection, or image with data including patient specific information. No patient name and other personal data will be included in any case!
By clicking the SAVE button, all selected images will be added to the collection.

Please note: If image has yet to be saved into the MoleMax HD database it will be added to the Education and Research Module only when button "Save" is selected on the localization window.

Option 2. Using SEARCH within the module.

When "Search" button within the Education and Research Module is selected following screen appears:
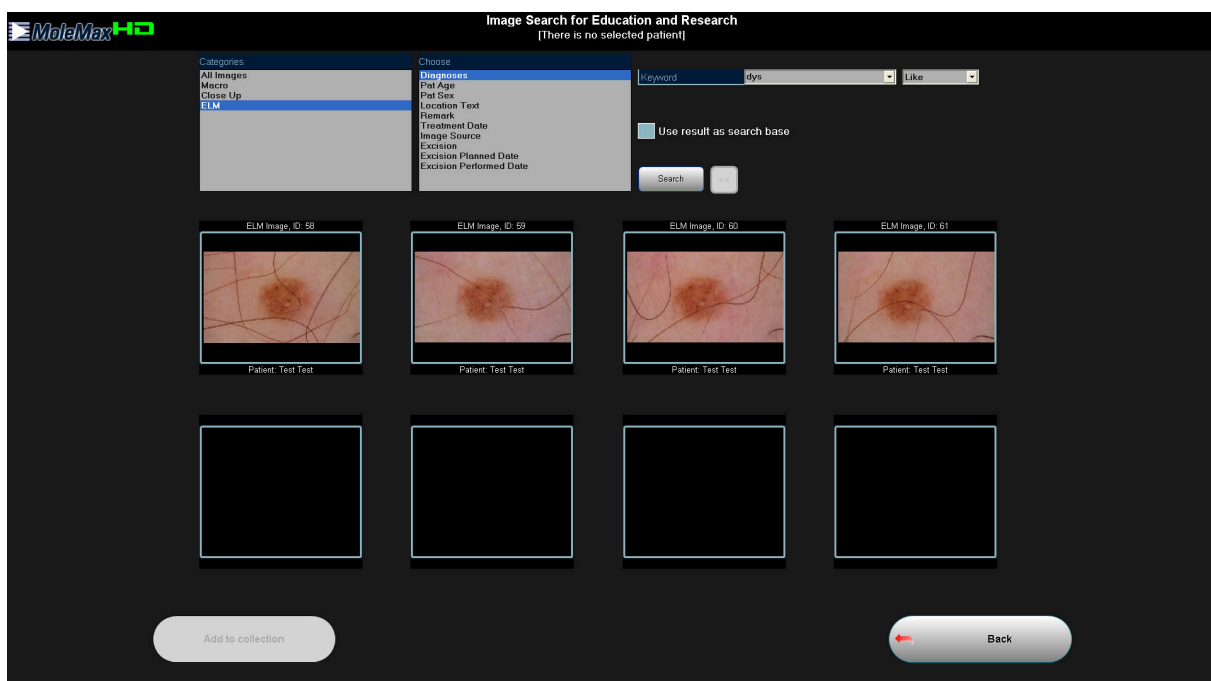
On the top of the screen filters with different search criteria are shown. By selecting criteria and entering search keyword in the search field, Education and Research Module automatically finds the appropriate images within the MoleMax HD database. In case of too many results, clicking the field "Use result as search base" and redefining search criteria can narrow down results.

After search is completed several images may be added to the image collection. As described in Option 1, user has now the choice to include either only images to the collection, or image data with patient specific information. No patient name and other personal data will be included in any case!
By clicking the SAVE button, image will be added immediately to the collection.

Once the selection is completed and user enters the Education and Research Module the complete image collection is displayed on the screen. Thumbnails of all selected images are shown on the left side while image information is displayed on the right side.
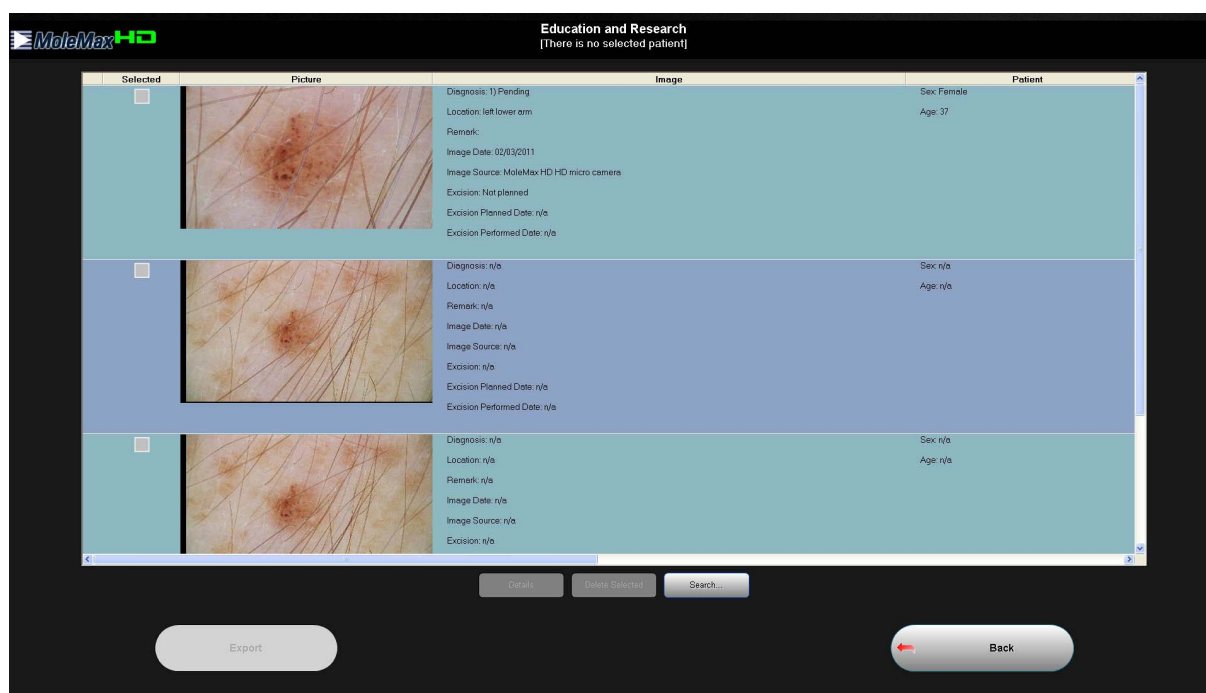

This list can be browsed, edited, deleted, etc. Simply select the requested thumbnail by clicking its check box and then select the action to perform.

Finally, the collection is ready to export and publish or demonstrate! Select all images for export by clicking the Thumbnails' checkbox and then click the EXPORT button. Education and Research Module will prompt user to select the destination folder where the generated HTML pages are to be saved.

Presentation Data can be viewed by using any internet browser!

8.7. Patient Management

Within feature Patient Management several patient related administrative functions can be performed. User can perform search after images with no diagnose or images selected for excision, edit patient data or check dates for patient recall. Furthermore images or whole patients can be deleted in this menu. After clicking on **PATIENT MANAGEMENT** in Administration menu following screen appears:
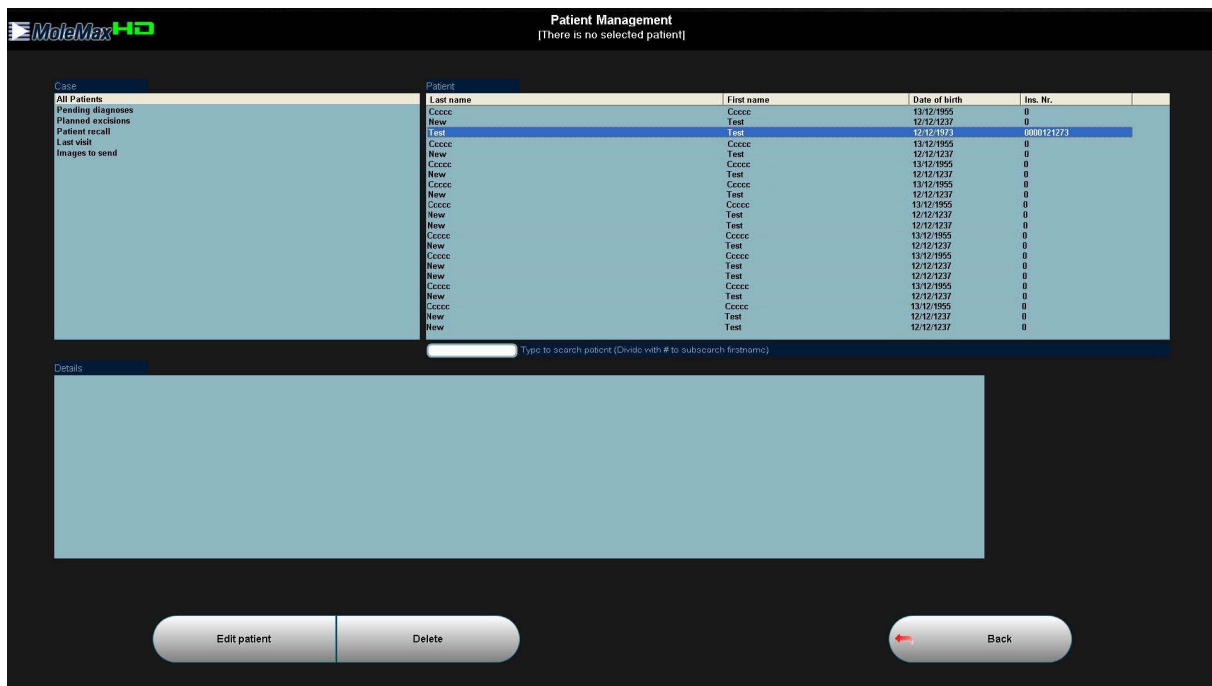
In this window the following options can be chosen:

- Edit or delete a patient or delete single images of a patient
- Find images without diagnose and add a diagnose
- Find images selected for excision
- Patient recall
- Find images selected for DermaNET and send these images
- View last visit date of patients

Edit Patient data

To edit patient data select the patient and select **EDIT PATIENT**. It is possible to correct any spelling mistakes or other incorrect information. Also the date of the follow-up visit can be entered. This function is equal to creating the patient as described in Chapter *"New Patient"*.

> **IMPORTANT**
> The appointment for a follow-up visit needs to be entered in this function.

Select **ADDITIONAL** and enter the date of the follow-up visit. Only a defined follow-up visit date allows the software to check whether the patient has been seen for his scheduled appointment. For more detailed information see Patient Recall below.

Select **SAVE** to store the corrected patient data.

REMEMBER

- Two first or last names of a patient have to be typed with space between the names.
- It depends on the country settings how to enter the date of birth. Always use 4 digits for the year e.g. 1950. This is very important for patients born before year 1929.
- To calculate the Risk Group the patient falls into, select the option **MELANOMA RISK** and answer the four questions together with the patient. The result is immediately displayed at the bottom of the screen. There are four possible risk groups (low, average, increased and high risk).

Delete Patient or Patient Images

To delete the patient data select the patient first and then select **DELETE** button. Following screen appears:
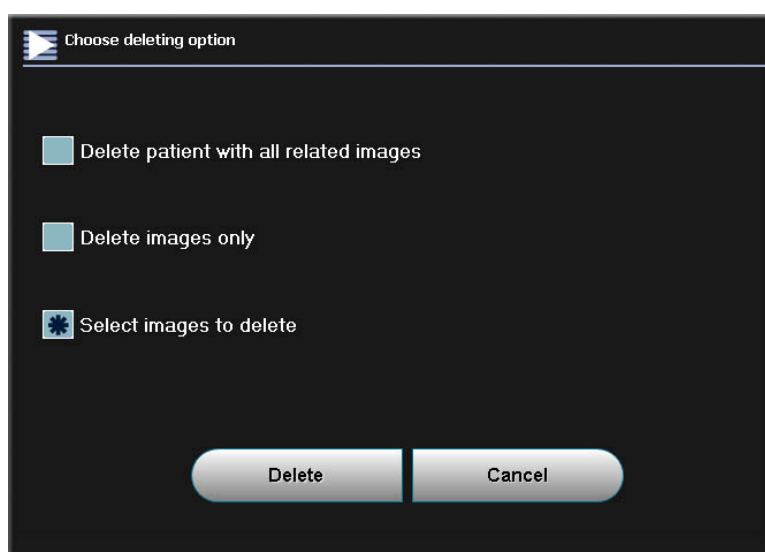
Choose to delete the patient with all images from the database, to delete all images of the patient or to select images to delete. Please note any deletion is permanent and can't be rolled back.

When patient (**"Delete Patient with all related images"**) or all images of a patient (**"Delete images only"**) are selected for deletion, screen with exact information about the files to be deleted is displayed. Confirm with **DELETE** to delete the patient or images permanently.

If you want to select images to delete choose last option **"Select Images to Delete".** Familiar 3x3 patient screen is displayed. Select images to delete (including pre follow ups in the fourth column) and confirm with **SELECT**. Screen with exact information about the files to be deleted is displayed. Confirm with **DELETE** to delete selected images permanently.

IMPORTANT
- **There is no Undo feature after performing DELETE function!**

Pending Diagnoses

To see the list of all images without diagnose data select the **PENDING DIAGNOSES**. The list of all images without diagnosis is displayed in the bottom window. Click on the particular image in the list and select **SHEET** button on the right side to enter **DETAILS** screen where diagnosis can be assigned.
Confirm with **SAVE** to return to the list of pending diagnosis. Next image can be selected now.

Choose to display between ELM, Macro and Close Up images by clicking appropriate check boxes on the bottom of the screen.

Planned Excisions

To see the list of all images checked for excision select the **PLANNED EXCISIONS**. The list of all images noted for excision is displayed in the bottom window. Click on the particular image in the list and select **SHEET** button on the right side to enter **DETAILS** screen.

Only micro images apply for this function.

Patient Recall

To see the list of Patient noted for recall select the function **PATIENT RECALL**. The list of all patients noted for recall is displayed on the right side and required follow up date is displayed in the bottom window. The patients that are overdue on their scheduled follow-up visit are displayed **RED** in the list. The other, for follow up marked patients, are displayed in standard **BLACK** letters.

If the patient is not due for recall any more use button REMOVE on the right side to remove the patient from the list. If patient should be noticed for recall use button EMAIL to send a reminder email to the patient (this patient's email should be preset in the patient record to enable this function). Furthermore list of patients to be recalled, selected patients only or whole and complete recall list may be printed if there is printer on the system. Use the function SET FOLLOW UP DATE to edit or set recall date for any patient.

Last Visit

To display last visit of all patients as well as number of visits and number of images of every single patient use function **LAST VISIT.**
List of patients with the dates of their last visit is displayed in the right window. Selecting the patient in the list to see details of the last visit, total number of visits and number of images.

The full list of patients with dates of their last visits can be exported by using **EXPORT PATIENT LIST** function on the right side of the screen.

Images to Send

To see the list of all images checked for DermaNET select the **IMAGES TO SEND**. The list of all images noted for DermaNET is displayed in the bottom window. Click on the particular image in the list and select **SHEET** button on the right side to enter **DETAILS** screen.

Choose to display between ELM, Macro and Close Up images by clicking appropriate check boxes on the bottom of the screen.

9. Administration

MoleMax Administration Menu is activated by clicking the **ADMINISTRATION** button in MoleMax Main menu
All important settings such as DermaNET settings, Diagnose configurations, MoleMax Backup settings and User profiles, as well as additional functions such as Patient search mechanism and module to Delete Images are located within this menu.

After entering MoleMax Services Menu following screen is displayed:
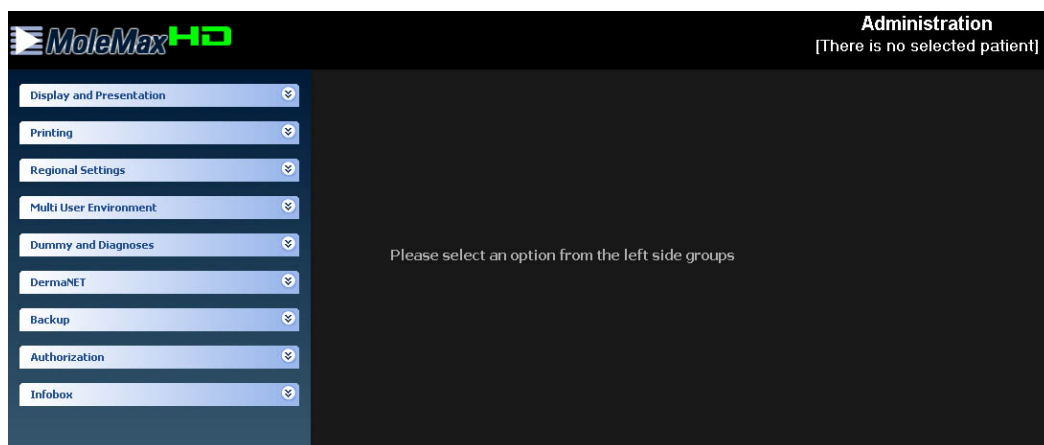
List of settings and functions are located in the top left corner of this screen. Simple select an option by clicking on it.

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9.1. Display and Presentation

First Option within Administration Menu is called "Display and Presentation". It is used to determine user preferred settings for image and video presentation as well as to enable/disable image sources.

In "Live Video" option user can determine if Live Video in Follow Up function should start in Full Screen or Compare mode.

In "Image Selection Preview" option user can determine if Follow UP / Monitoring should start in 3x3 view, M+C view or in Dummy view.

In "Image Sources" option user may select / deselect any of four available image sources:

- Live Video
- Image File Import
- Direct Image Import from Digital Camera
- TWAIN source Import

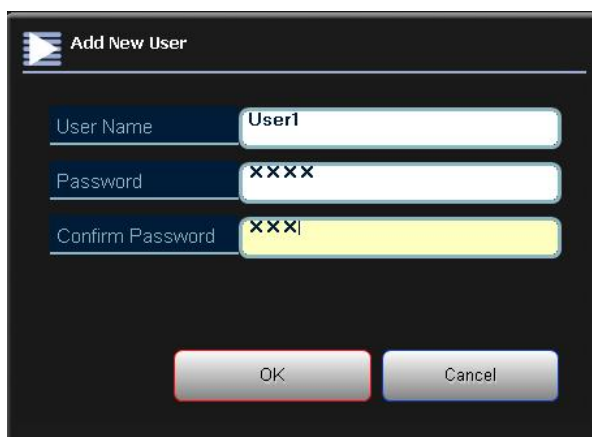Please note that Live Video and Image File Import are selected by default.

9.2. Multi User Environment

By clicking on **Multi User Environment** button administration screen for setting a multi user option is displayed. Following screen is shown:
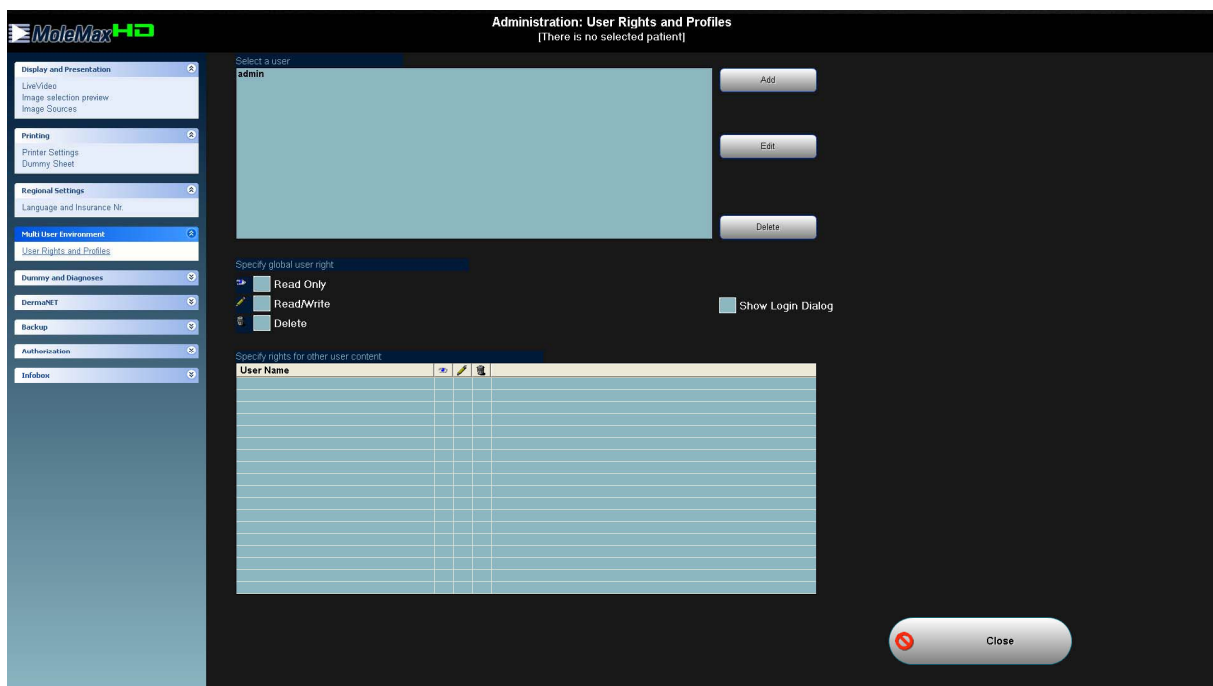
Simply add new users by clicking the button **ADD** or edit an existing user by clicking the button **EDIT**.

When adding a new user first step is to determine name and password as on the image left below. After the user name and password are determined second step is to adjust user rights for this particular by using checkboxes **"Read Only"**, **"Read/Write"** and **"Delete"**.
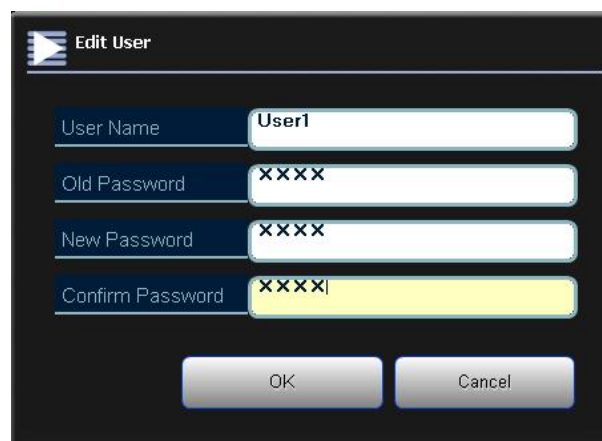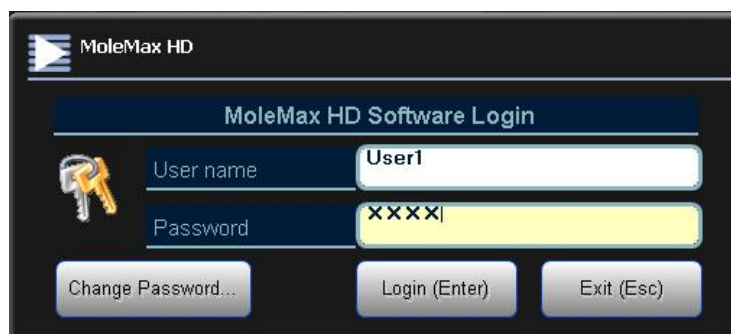
If editing the patient first step would be to edit user name and password as sown on the image right above and second step is to edit the rights of this user.

Please note ONLY administrator user "**admin"** is allowed to do this.

After user names and rights are defined, activate Multi User Environment by clicking the check box **"Show Login Dialog"**.

After Multi User Environment is activated the **LogOut** button is shown in the bottom left corner of MoleMax Main menu (as shown on the left image below).
Also Login is required when entering MoleMax HD software (as shown on the right image below).
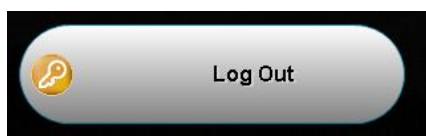
> **IMPORTANT**
> - Please note that STATISTICS menu is the only menu in the MoleMax software where images of different patients can be compared.
> - Current user is always displayed in the top right corner (yellow letters)

After Multi User Environment is set up as desired, exit the screen by clicking the CLOSE button and save the changes by clicking OK. Software will prompt you to Log In as desired user.

REMEMBER

- A user can see only his patients, patients of defined users or patients of all users. To be able to view the patients of other users adjust user rights within Administration menu
- To log on as a different user select **LOGOFF** on the main menu, and select the appropriate user name in the Log-on window.
- Only Administrator ("admin") can change user rights and set up user profiles.

9.3. Dummy and Diagnoses

If you want to define your own diagnose list and / or to change titles of body locations function Dummy and Diagnoses located within Administration menu is used.

9.3.1. Diagnosis Configuration

With this feature diagnoses can be changed, added and deleted and individual shortcuts can be set.

Step 1:

Select **DIAGNOSIS CONFIGURATION** in the Administration menu.
By using this function it is possible to edit and configure all diagnosis available in the list. This way personal diagnosis tree can be configured for each user.

Step 2:

To add a new diagnosis select **ADD DIAGNOSE**. Type in the diagnosis and define whether it is pending or risky by selecting the particular option. To assign a diagnosis to a function key select a button from F1 to F8. Confirm by selecting **OK**. Also define if this diagnose should be displayed in the list of favorite diagnosis
To edit a diagnosis select the diagnosis from the list and select **EDIT**. Change the diagnosis text and define whether it is pending or risky by selecting the particular option. To assign a diagnosis to a function key select a button from F1 to F8. Confirm by selecting **OK**. Also define if this diagnose should be displayed in the list of favorite diagnosis
To reset all diagnoses to defaults click the button **R** located in the top right corner.
To create a new category in the diagnosis tree select **ADD CATEGORY** button.
To delete a diagnosis from the list select it and select **DELETE**.

Step 3:

Select **CLOSE** and confirm with **OK** to save changes.

9.3.2. Location Nomenclature

With this feature the location texts of the various body regions can be edited. This is useful in particular if MoleMax HD software is not yet available in your language.

Step 1:

Select the **LOCATION NOMENCLATURE** in the Administration menu.

Step 2:

Select the specific Dummy position and select the body region. Change the location text below the dummy. Repeat this procedure for all regions that should be renamed.

	REMEMBER ▯ To rename the Micro location texts select the particular check box on the top right corner. ▯ To rename the Macro location texts select the particular check box on the top right corner. ▯ To reset all locations to default click the button **R**

Step 3:

Save the changes by selecting **CLOSE** and confirming the changes with **OK**.

9.4. DermaNET Settings in MoleMax HD

Use this function to set up DermaNET Address Book and DermaNET settings in the MoleMax HD software.

9.4.1. DermaNET Address Book

This function is used to set up Email recipients for DermaNET function within MoleMax HD. Click on **ADDRESS BOOK** and then on **ADD** button to open following screen:

Input the name of the recipient, and the Nick that should be shown for selection within DermaNET function. Input correct Email address of the recipient. Confirm with **OK**.

It is also possible to edit existing recipient by using the button **EDIT**, or to delete it by clicking the **DELETE** button.

9.4.2. DermaNET SMTP Server Setup

This function is necessary in order to set up DermaNET properly. In order to send an email (necessary for both Email and AIS functions) SMTP server must be defined. If you are not sure how to do this please contact your system administrator or nearest MoleMax dealer.

After clicking on **SMTP SERVER SETUP** following screen is displayed:

There are 3 possibilities to get connected to the Internet:

- The oldest one is that you have a modem directly connected to your system and that you dial into a server of your Internet Service Provider (Dial-Up Networking).
- There are Providers that offer a "24 hours online" service which means that whenever you turn on your system you are automatically connected with one of their Internet servers and you are online as long as you have your system running. Usually the connection is through a network-card in your system where a Tools type of modem is connected (Direct Connection).
- In a network neighborhood you often find a proxy server solution. That means that the workstations in the network are connected to a so-called Proxy Server that establishes the connection to the Internet (Proxy Server).

Depending on your individual setup you need to configure the DermaNet Settings as described below.

Dial Up Networking

Select **DIAL-UP NETWORKING** if you have a modem connected to your system and you are calling your Internet Provider.
If the Dial-Up networking is set up correctly in the operating system you can open the Phone Book Entry list and select the Dial-Up networking name of your Internet Service provider. If your personal User name and Password for the Internet connection is not filled in automatically, you need to fill them in manually in the appropriate lines.
Enter the SMTP server name or address (the name of the mail server for outgoing mails) in the appropriate line. Your Internet Service Provider provides this information to you. If you do not have this information please contact your Internet Service Provider.
Enter your email address in the appropriate line.
Select **CLOSE** and confirm with **OK** to save your settings.

Direct or Proxy Connection

Select **DIRECT CONNECTION** when you are always online when your system is turned on or if you are currently online.
Enter the SMTP server name or address (the name of the mail server for outgoing mails) in the appropriate line. Your Internet Service Provider provides this information to you. If you do not have this information please contact your Internet Service Provider.
Enter your email address in the appropriate line.
Select **OK** to save your settings.

> **IMPORTANT**
> AIS settings are done automatically during the MoleMax HD software installation, SMTP server setting is still mandatory to use AIS.

9.5. Backup Settings

Performing backup in regular intervals is one of the most important MoleMax HD functions. Only by performing successful backup all Patient Data are safe in case of machine failure!

The backup settings are pre-defined when the system is delivered. But in case o system upgrad or reinstallation following changes need to be made before using the backup function for the first time.

Step 1:

Select **INTERNAL AND EXTERNAL BACKUP SETTINGS** from the menu. Following screen is displayed:
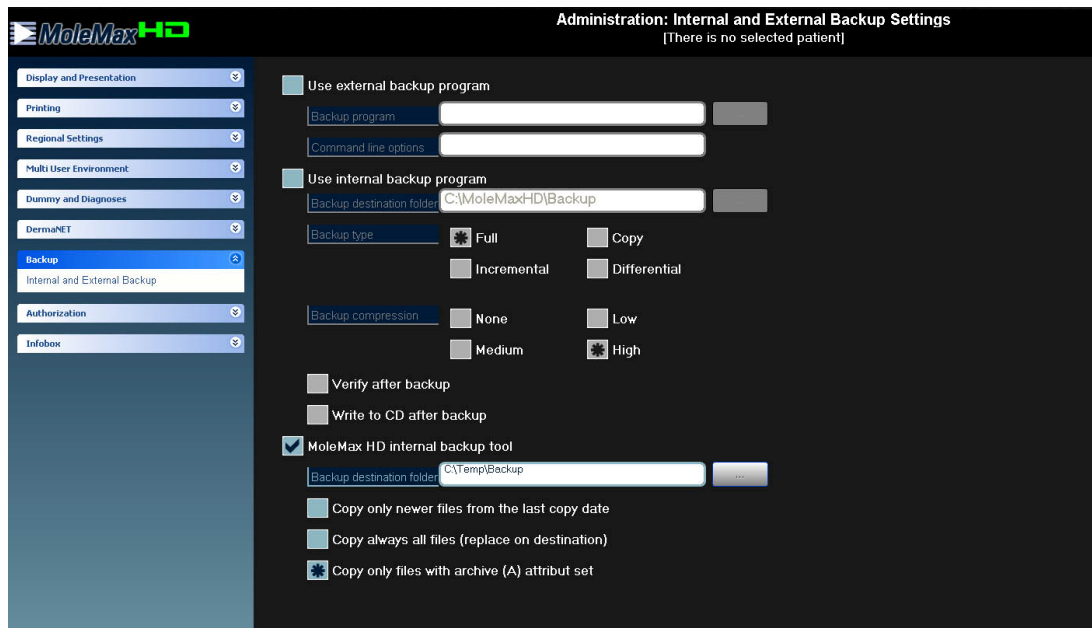
Internal and external backup are possible on MoleMax HD machine. Internal backup program is using proprietary MoleMax burning and external program is using a control to start external procedure such as Windows burning routine or Nero burning software.

Internal Backup may be performed as Internal Burning to CD/DVD/Blu-Ray or as copy tool to external USB memory (USB Memory Stick or USB Hard Drive)

Internal Burning (standard):

- Select the option **Use internal backup program**.
- Enter a temporary backup folder on the local hard drive in the line **Backup destination folder** (c:\molemaxhd\backup).
- Choose one of the following options in the section **Backup type**:

Full (default setting)	Backup every file, regardless of the archive attribute
	Removes the archive attribute after the file is backed up
Copy	Backup every file, regardless of the archive attribute
	Does not remove the archive attribute after the file is backed up
Incremental	Backup only the files that have the archive attribute
	Removes the archive attribute after the file is backed up
Differential	Backup only the files that have the archive attribute
	Does not remove the archive attribute after the file is backed up

Choose one of the following options

- Select the option Verify after backup.
- Select the option Write to CD after backup.

Internal Backup Tool

- Select the option **MoleMax Internal Backup Tool**.
- Enter Backup Destination (path to external USB drive)
- Choose one of three copying options

External Backup:

- Select the option **Use external backup program**.
- Enter a command line to start external backup program
- Enter a flag describing the files to be recorder during backup.

> **IMPORTANT**
> **Backup is VERY IMPORTANT function. Perform it in regular intervals.**
> **Contact your administrator immediately if your backup drive is broken.**
> **Always store Backups of your system at external site!**

See Section *"Backup"* in order to learn how to perform backup correctly!

9.6. Regional Settings

MoleMax HD software can be run in different languages
Use this Section of Administration Menu to determine the language used within User Interface as well as additional language options in MoleMax HD software.

- Select one of the languages listed in "Available Languages" for User Interface (Buttons and MoleMax Messages)
- Select the Checkbox "Change Resources" to change Diagnoses and Dummy Locations to selected language
- Choose amongst three options of Insurance number presentation

Please note that Standard Language of a MoleMax HD System is English and that language of System Messages may depend of the language of installed Windows operational System.

9.7. Printing

Use the Section Printing within the Administration Menu to select default printer for MoleMax HD printouts.
Please note that MoleMax HD default printer does not have to be identical to default Windows printer.

MoleMax HD can either use physical printer or save the reports and printouts as in PDF format.

For more information about printing see Chapter REPORTS

9.8. Authorization Code

Use this Section of Administration Menu if an additional option is purchased as extension to existing MoleMax HD System.
Please note that Site Code and System Serial Number are necessary in order to activate any additional Option. In order to activate additional Option please contact Derma Medical Systems or the nearest Dealer.
Ito determine the language used within User Interface as well as additional language

9.9. Infobox

Click on **INFOBOX** to get web links for **Derma Medical Systems** homepage and for our parental company **MacQuarie Health Corporation**, as well as for **Derma Medical Systems Online Store**.

10. AllSkin Module / 10.1. Introduction

AllSkin is a diagnosis library, which is illustrated with images, descriptions and has ability to browse and search through. The images are categorized by diagnosis in one hierarchical list.
To start to use AllSkin, select the menu item "Images". This menu will exist on all dialogs where the possibility of giving diagnosis exists.
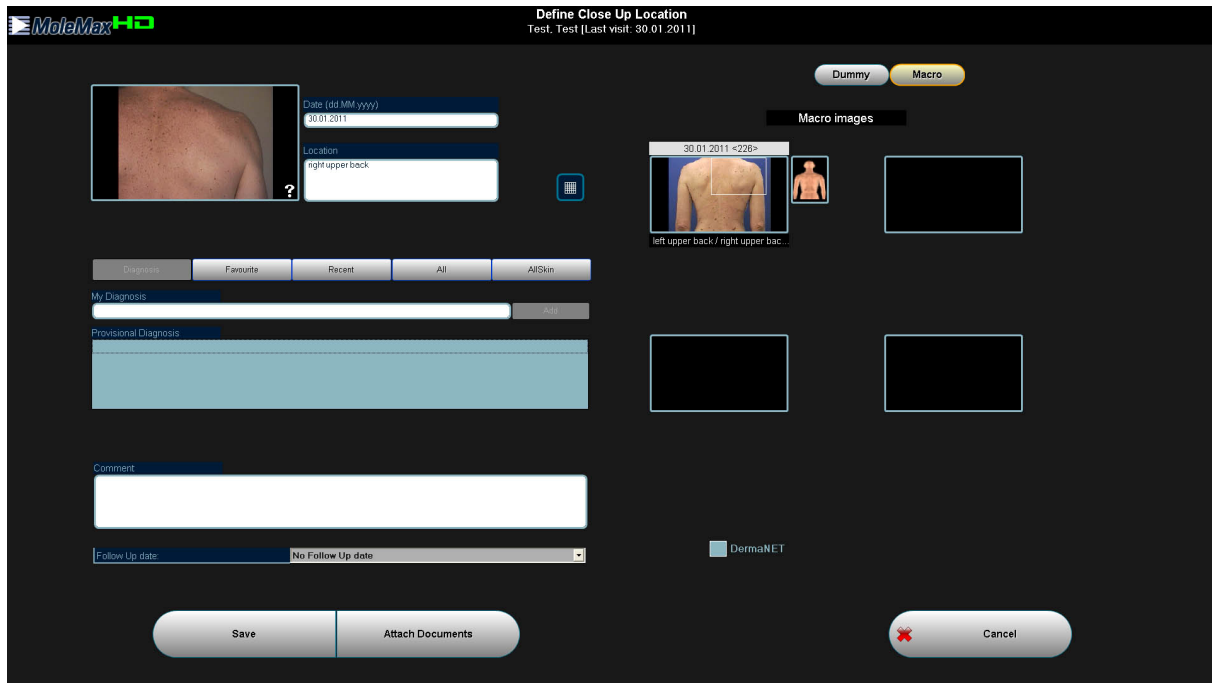
> **IMPORTANT**
> The AllSkin is not a standard standalone application and it can be started only with MoleMax HD.

The startup screen of AllSkin:
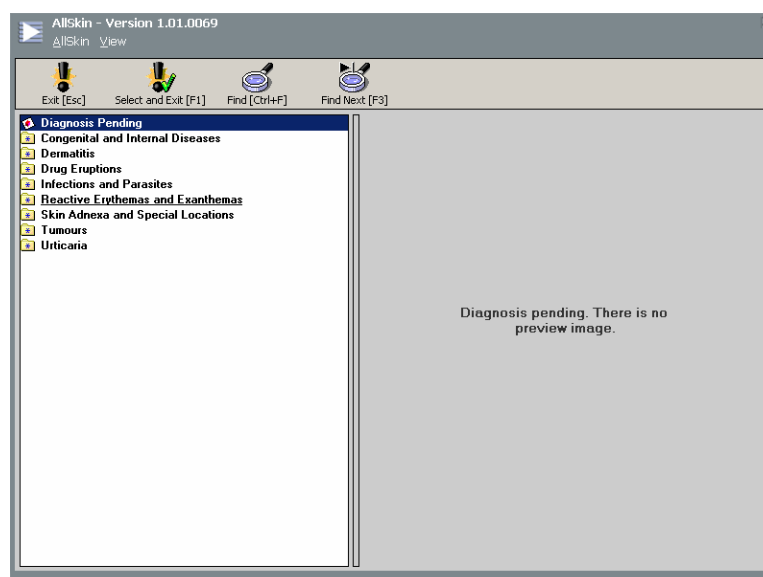
On the left side the hierarchy list of diagnoses is shown, and the right side is the preview panel.

10.2. Selecting the Diagnosis

To select the category, just click on it in the left panel. The content of this category is shown in the preview panel as thumbnail images.
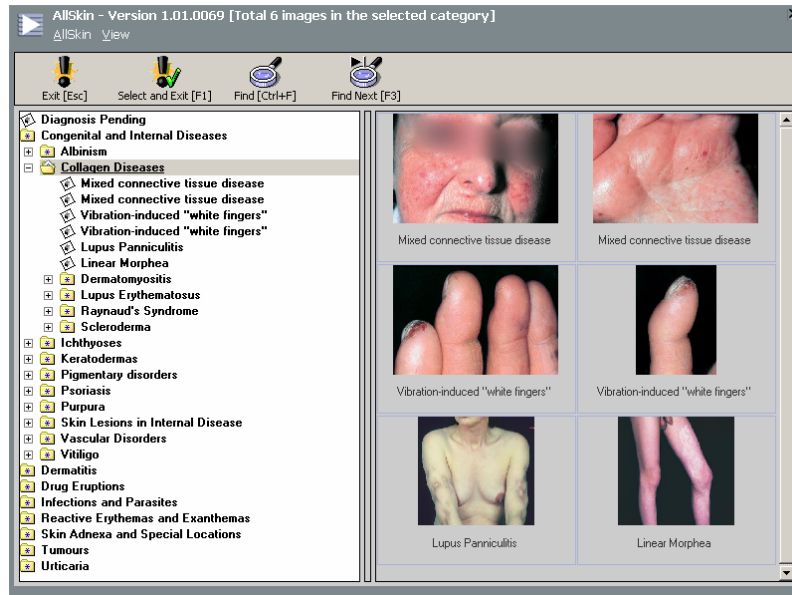
To select the diagnosis, just mark the desired thumbnail and click **Select and Exit** button from the toolbar, or press **F1** button.
If the selected item on the hierarchy list is an image, then the preview of this image with details is shown in the preview panel:
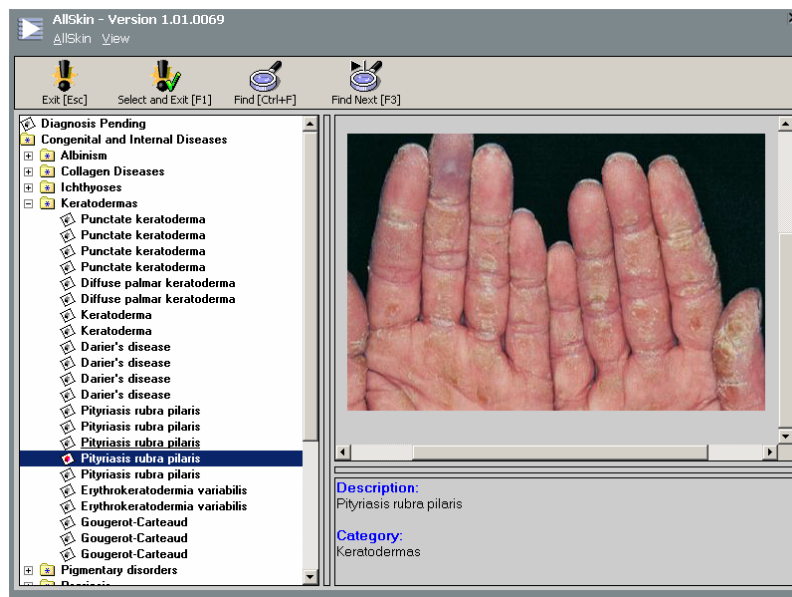
To select the diagnosis, just click **Select and Exit** button from the toolbar, or press **F1**, or just double click on description.

10.3. Searching For Desired Diagnosis

To search through database, click **Find** button on the toolbar or press **Ctrl/Strg + F** keyboard combination. The following dialog will appear:
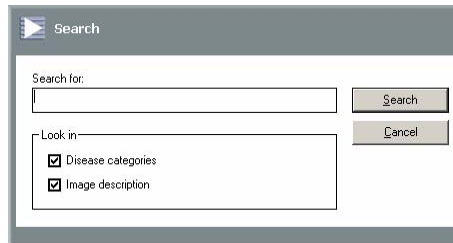
Type the desired keyword (or part of it) in the search box, select option where to look in (in categories or/and in descriptions) and press **Search**.
The searched item, if exist, will be located in diagnosis hierarchy list and the details will be in the preview panel. To search another occurrence of given keywords, just press **Find Next** on the toolbar or press **F3**.

10.4. Settings

Click on the menu item *"View → Options...".* The following dialog will appear:
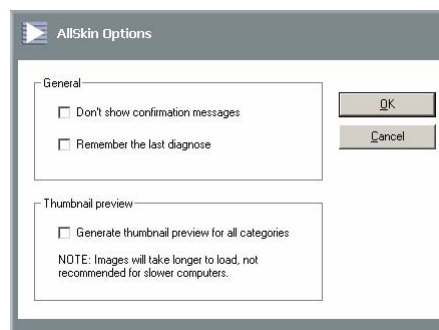
The options are:

- Don't show confirmation messages - Select these options to avoid the messages at selecting diagnosis and leaving from AllSkin.
- Remember the last diagnosis - Select this option, and AllSkin at the next start will locate and select the last selected diagnosis.
- When generating thumbnail preview, enumerate all images in subcategories too - Select this option if you want to have a preview of all thumbnails in the selected category and it's subcategories.

> IMPORTANT
> This last option is not recommended for slower computers, because generating of preview can take a lot of time.

11. Powering Down the System

MoleMax HD System is designed for continuous run during its screening times. After the use MoleMax HD System should be switched OFF.

Select button EXIT in the bottom right corner within the Main Menu and following screen is displayed:

Select EXIT FROM MOLEMAX HD ONLY to return to the Windows desktop.

Select SHUT DOWN COMPUTER to exit MoleMax HD software AND Windows software as well. After system has completed its shutdown procedure, switch OFF the MOLEMAX HD MAIN SWITCH.

Select LOG OFF WINDOWS to exit MoleMax HD software and log off from your Windows profile. Computer will stay in its own login screen.

> IMPORTANT
> After computer has shut down switch the MoleMax HD System completely OFF by using the green MAIN SWITCH located on the right side of the MoleMax HD tower!

MoleMax

USER MANUAL

Section IV – FAQ (Frequently Asked Questions)

12. Troubleshooting

12.1. Problem Solving

Problem	*Check/Action*

a) System not ready

☑ Main power plug in socket
☑ Red light on main power switch on
☑ On/Off power button on the basic unit turned on

b) No display on monitors

☑ Monitor power switch turned on
☑ Basic unit power switch turned on
☑ Interconnection between monitor and basic unit

☑ Turn off basic unit, wait for 1 minute and turn it on again

c) Black live video screen

☑ Green light on basic unit on
☑ Camera cable connection
☑ HDMI Cable

☑ Power
☑ Fuse

d) Automatic recognition of camera mode does not work

☑ USB Cable connection on the backside of the system (see chapter Connections)
☑ Check the appropriate settings in the settings.ini

e) No freeze function with RB

☑ Move cursor into the live video frame

f) No image on LCD camera screen

☑ Wait 6 seconds on startup
☑ HDMI cable on the back
☑ FBAS cable on the back

Problem   *Check/Action*

g) Error when initializing the camera

    ☑   System camera not properly connected at the boot up
    ☑   Attach the camera and restart the system
    ☑   Check the appropriate settings in the settings.ini

h) Colors on the screen change during use

    ☑   Cable connection between monitor and basic unit
    ☑   Do the interferences occur when moving the camera cable? Exchange Camera Cable.

i) Backup is not performed

    ☑   No or wrong backup disk (CD-R/DVD-R) inserted
    ☑   Backup settings in Administration Menu

i) Printing not possible / Printout is of bad quality

    ☑   Printer power switch
    ☑   Cable connection between basic unit and printer
    ☑   Printer settings
    ☑   Clean printer cartridges or exchange them if necessary

IMPORTANT

☑   For hygienic reasons clean the front glass of the MoleMax HD camera after each examination with a soft, fluff-free cloth.

12.2. Service Support

The information contained in this manual has been carefully written and is accurate for the existing system. We are, however, continually striving to improve and refine our product. Some minor changes in the hard- and software configuration resulting from such improvements will not affect the basic operation procedure but will provide the newest technology available at the time.

If you encounter any problems not covered in this manual, please contact your local dealer or use the

MoleMax SERVICE-HOTLINE

+43 1 318 69 90

Monday-Friday from 9:00 to 16.00 (CET).

German or English language.

Or send an email to derma@dermamedicalsystems.com

Thank you for your co-operation and please recommend

MoleMax HD.